# SMALL-GROUP INSTRUCTION





## THEORY AND PRACTICE

UNANNOUNCED

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# SMALL-GROUP INSTRUCTION:

## THEORY AND PRACTICE

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HumRRO
HUMAN RESOURCES RESEARCH ORGANIZATION

# Foreword

This volume is an analysis of the state of the art of small-group methods of instruction. It describes some of the more commonly used small-group techniques and the rationale behind them, and provides an analysis of their potential use for various types and conditions of instructional environments. Explicit guidelines are provided to assist trainers and training managers in selecting methods that will accomplish desired instructional objectives and in using the methods effectively.

This document combines revised versions of two HumRRO reports: *Handbook of Small-Group Methods of Instruction*, May 1972, and Technical Report 70-3, *Theory and State of the Art of Small-Group Methods of Instruction*, March 1970, both by Joseph A. Olmstead. The research activities were carried out as part of the work at HumRRO Division No. 4 at Fort Benning, Georgia performed under contract to the Department of the Army.

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# SMALL-GROUP INSTRUCTION:

## THEORY AND PRACTICE

# Introduction

*Objectives*

This volume is concerned with methods of small-group instruction, specific techniques that use group processes to stimulate learning. The use of small groups for instructional purposes is widely practiced in a variety of contexts, ranging from conventional educational institutions to the armed forces and training within business and industry. However, despite this wide usage, concrete information and practical guidance concerning instructional methods suitable for use with small groups have been difficult or impossible to find. The purpose of this volume is to provide such information and guidance.

The contents are divided into two parts. Part I is a handbook of methods for small-group instruction. Its purpose is to provide practical guidance for the selection and use of some of the more common small-group methods. Part II, on the other hand, is an analysis of the theory and state of the art of small-group instruction. There, a rationale for the use of the methods is presented, research concerning the efficacy of the various methods is reviewed and evaluated, and implications for use of the methods are discussed.

Readers who are mainly concerned with identifying methods that will best accomplish desired instructional objectives and with determining their administrative requirements are referred to Part I. However, as stated in the final paragraphs of this volume, the most effective use of small-group methods requires that an instructor understand, accept, and be comfortable with the premises embodied in their rationales. Accordingly, it is strongly recommended that any choice of the methods outlined in Part I be supported by study of the material presented in Part II.

*Reaching the Student*

The quality of instruction provided to students is a continuing concern of educational institutions, the armed services, and government agencies with responsibility in the field of education. The problem has numerous aspects and

many are currently being attacked by both researchers and practitioners. One difficulty which seems to be especially hard to overcome involves the necessity for maintaining or improving the quality of instruction despite increasingly large numbers of students.

Of necessity, mass educational endeavors usually serve only the "average" student. Therefore, both fast and slow learners may suffer the consequences of exposure to instruction that is not well suited to their respective capabilities. Furthermore, the passive nature of the mass learning situation, the lack of close contact with instructors, and the impersonal atmosphere of large classes tend to stifle the motivation of many students. For these reasons, educators and trainers have continued to search for ways of providing high-quality instruction to increasingly large numbers of students.

Greater individualization of instruction has been proposed as one way of both taking into account and exploiting differences in students' abilities and in their motivation to learn. Probably the best-known methods for individualizing instruction are the several variants of programed instruction—teaching machines, programed books, and computer-assisted instruction. These methods are effective for numerous types of content and offer much promise when used with understanding of their benefits and limitations.

However, for numerous reasons total individualization is not always feasible or desirable. Another technique for overcoming some of the objections to mass programs is the use of small groups and of certain instructional methods suitable only for small groups. This technique has become increasingly popular in educational institutions, where it is claimed that small-group methods bring instructor and student closer together, are conducive to more intensive learning experiences, and greatly enhance the motivation of students.

## *The Small-Group Rationale*

The fundamental goal of every instructor is to create around the student those conditions that will be most conducive to learning. Small-group methods of instruction are one approach to the creation of such conditions.

Regardless of the particular method used, the rationale for small-group instruction rests upon the premise that learning is partly a function of attitudes, and education or training is a matter of overcoming resistance to change. This can be accomplished by discussing issues or problems and, in some instances, arriving at decisions about how they might be handled. Because the group resolves the problem itself with each student participating, members are committed to the solution through the functioning of group norms endorsing the new ideas or behaviors. Under this rationale, two purposes are assumed to be accomplished: (a) students get new insights into problems by hearing different viewpoints and by having their ideas critiqued, and (b) they learn new ways of behaving to which they are committed because of group discussion and decision.

For maximum learning to occur, a group must possess a common goal for learning, a reasonable degree of cohesiveness, norms conducive to learning, and patterns of effective communication—in effect, a learning culture. In permanently structured groups, these ingredients may already be present. However, in most instructional situations, where students usually meet for short periods spread over weeks or months, instructors must create and develop the required structure and processes of the group. The various methods used in small-group instruction are devices for accomplishing these purposes.

# Part I

# SELECTION AND USE OF METHODS FOR SMALL-GROUP INSTRUCTION

Chapter 1

# THE PLANNING OF SMALL-GROUP INSTRUCTION

The purpose of Part I is to provide practical guidance for the selection and use of some of the more common small-group methods of instruction. It is designed to assist instructors and instructional managers to identify methods that will best accomplish desired instructional objectives or, given a method, to determine the objectives it will accomplish and its requirements in terms of time, instructors, students, facilities, and so forth.

To accomplish this practical purpose, it has been written as a handbook, omitting rationale, theory, and evidence for or against use of the methods that are discussed. The methods and procedures for their use are described in outline form. The instructor can adapt them to his or her own needs, keeping in mind the nature of the students and the skills of the instructor. A comprehensive discussion of the theory and rationale that underlie the various methods, as well as research evidence concerning their efficacy, is presented in Part II.

## SCOPE OF HANDBOOK

The focus of this handbook is upon *small-group* methods of instruction. For the present purpose, the term "small group" refers to a collectivity of not more than 20 individuals. This is an arbitrary definition; however, experience strongly supports the view that instructional effectiveness is reduced when groups consist of more than 20 students, while any number less than 20 can be readily managed in most learning situations.

Furthermore, this handbook is concerned with methods that are specifically designed to use the social-psychological forces inherent in small groups for learning purposes. The mere reduction of class size to less than 20 individuals does not constitute use of a small-group method for instructional purposes. Small-group methods are specific techniques. Accordingly, the term *small-group methods of instruction* is restricted to techniques through which group processes are used to stimulate learning.

It is recognized that certain of the methods discussed herein (e.g., the Harvard Case Method) are often used with more than 20 students. However, evidence indicates that they are most effective in a small-group context and, accordingly, these methods are included in this handbook.

## APPROACH

Fundamental to all small-group methods is use of the social-psychological forces in small groups to enhance and maximize the conditions under which learning occurs. Although the final responsibility for learning must rest with the individual student, the fundamental goal of every instructor is to create around the student those conditions that will be most conducive to learning.

Regardless of the particular method used, the rationale for small-group instruction rests upon the premise that learning is partly a function of attitudes, and education or training is a matter of overcoming resistance to change. The group discusses issues and, in some cases, arrives at decisions about how they might be handled. Because the group resolves the problem itself with each student participating, students get new insights into problems by hearing different viewpoints and by having their own ideas critiqued, and they learn new ways of behaving to which they are committed because of group discussion and decision.

Conditions necessary to overcome attitudes that are resistant to change include (a) a learning climate that provides emotional support to students, (b) opportunity for them to practice an analytical attitude through controlled observation, (c) opportunity to experience varied and realistic learning situations, (d) opportunity for experimentation with new concepts, and (e) opportunity for the student to obtain feedback concerning others' reactions to his newly developed ideas.

These conditions can be provided best within the context of a small group which possesses (a) a common goal for learning, (b) a reasonable degree of cohesiveness, (c) norms conducive to learning, and (d) patterns of effective communication—in short, a learning culture. Small-group methods are designed to systematically use these group forces to influence and increase learning.

## THE DESIGN OF AN INSTRUCTIONAL PROGRAM

The methods discussed in this handbook are most effective when they are conducted according to a carefully planned training design. Following are some fundamentals of design as especially applied to small-group methods of instruction.

### Identifying Instructional Objectives

Clear and explicit instructional objectives are critical for effective use of small-group methods. The methods differ in terms of outcomes,

requisite instructor skills, and expected student reactions. Accordingly, effective use of the methods requires that instructors know precisely what they are trying to accomplish.

Objectives should be clearly understood in terms both of levels and kinds of learnings to be achieved by end of course and of kinds of behavior to be exhibited after course completion. Any instructor who is given the responsibility for designing a course is faced at once with the necessity for resolving this problem. As decisions are made about the proper methods and content to use, the question of the objectives toward which instruction should be directed is encountered. Indeed, as the instructor goes about selecting objectives, a deeper problem must be resolved—decision on the kinds of behavior students should exhibit after completion of the course. The instructor's resolution of these problems has important implications for the decisions that must be made relative to content, method, and other aspects of instruction.

Thus, it is clear that an explicit conception of the behavior which is desired to follow from the course is essential. The instructor who has objectives clearly in mind and, in addition, has made a careful analysis of the available instructional methods, is in a more favorable position to design a course with sufficient precision to achieve genuine learning.

## Selecting Instructional Methods

Once objectives have been identified, the instructor must make a decision as to the method to be used. Choice should be made principally on the basis of the objectives to be accomplished, although it is possible that choice among methods which are equally desirable in terms of objectives may be decided by number of instructors available, space limitations, facilities required, and so forth. However, precedence must be given to objectives as the primary consideration.

For each of the methods outlined in this handbook, objectives the method is most likely to achieve are listed. It remains for the instructor to decide which among these objectives will best satisfy his teaching needs. After resolution of this issue, consideration should be given to other limiting conditions, many of which are also covered in discussions of methods which follow.

## Producing a Master Instructional Plan

After objectives have been identified and a method has been tentatively chosen, it is useful to assemble all of the principal variables that are involved in a master instructional plan. Here, a "master plan" is a broad

outline of the activities that must occur, the sequence in which they must occur, and other variables, such as instructors, facilities, and so forth, that are required.

Methods of assembling a master plan are infinite and, accordingly, specifics will not be provided here. The important thing is that, at this point, the plan should be tentative. Often three or four alternative plans may be outlined before a final one is produced.

Once a tentative plan has been determined, it is useful to test the plan against the following criteria:

(1) *Relevance for Student Needs.* The proposed instruction should be aimed at meeting genuine needs of students and should be demonstrably relevant to those needs. If relevance cannot be demonstrated, consideration should be given to discarding or modifying the plan.

(2) *Helpfulness in Relating Instruction to Real World.* The proposed activities should help students to link events in the training situation to "real-world" requirements, and vice versa. Links between training events and on-the-job problems should be made explicit. Further, the proposed activities should encourage and support the use of new learnings on the job. Preplanning, dry runs, etc., are helpful here.

(3) *Location Within the Instructor's Range of Competence.* Instructors should not try methods in which they lack the required proficiency. On the other hand, some insecurity is natural and much skill can be rapidly developed through practice.

(4) *Maximal Motivational Impact.* The instructional procedures should stimulate active interest and participation.

(5) *Multiple Learning.* The proposed activity should provide for intellectual, attitudinal, or skill types of learning—or combinations of these. Furthermore, an entire program (a series of sessions) should provide for all types. A single session should focus rather narrowly; however, a full sequence of training activities should round out a larger picture and assist the student in many different aspects of his learning endeavors.

(6) *Self-Correction.* A good instructional activity should contain provision for continuing evaluation and self-correction. Evaluation of every session by both instructors and students permits rapid identification of instructional problems and prompt correction of defects.

Unless the master instructional plan measures favorably on all six criteria, it should be modified until it meets each criterion to the planner's satisfaction.

## Planning in Detail

The design that is finally chosen should be planned in sufficient detail so that everyone who has responsibility for its operation knows what he is to do. The critical danger here is that plans will become so rigid that modifications cannot be easily accomplished as instruction progresses. No plan can ever anticipate all events that may occur nor can it ever predict the precise atmosphere that will develop in any particular learning group. Therefore, some modification, however slight, is almost inevitable. The most effective training designs have sufficient flexibility built into them that adjustments can be made easily without serious trauma to either the plan or the personnel.

## Conducting the Instruction

Specific procedures for conducting instruction appear in the discussion of each method later in the handbook. However, several suggestions of a general nature are relevant for all methods.

The first time a method is used with a group, it is important to provide a brief overview of the procedures to be followed, so that all group members have a common time perspective and understand what will be required of them.

In general, an instructor should almost never intervene in a group's deliberations once they are under way, unless it is certain that serious misunderstandings of the procedures are involved. It is important, however, for the instructor to periodically monitor the activities of each group for which he is responsible in order to insure that members understand the task and the activities they are to perform.

All of the methods presented in this handbook include at least one discussion period of some sort. In development of the training plan, it will be necessary to allocate definite periods of time for the discussion sessions. However, group discussion should continue only so long as interest and participation are high; these will vary significantly according to topic, group composition, and task. For this reason, time allocated for discussion periods should never be frozen into the training design. Experience with discussions of the topic by two or three groups will give a good indication of time required, and adjustments in the design should be made accordingly.

## Evaluating and Replanning

Evaluation is a process of determining whether certain actions have led to desired consequences. Usually, one must (a) specify the desired objectives of instruction, (b) devise ways of measuring the extent to which the objectives have been achieved, (c) conduct the instruction, (d) collect the desired information, and (e) analyze and interpret it before replanning the next instructional effort. Evaluations may have differing standards of precision and highly rigorous evaluation may not always be possible. However, the point of this discussion is that some systematic evaluation should always be performed and program modifications and replanning should be based upon the information so obtained.

Chapter 2

# COMMONLY USED METHODS FOR SMALL-GROUP INSTRUCTION

On the following pages, a number of methods of small-group instruction are described. Each is presented in outline format for easy reference. It is recommended that the reader who is contemplating use of one of the methods read all of the material presented for that method before making a decision. Consideration of each of the factors in light of instructional requirements should make it possible to determine suitability of the method for the particular situation.

It is recognized that many instructional situations include peculiar conditions which may place limitations upon the ability to use a given method in the most effective way. As one example, the time allocated for training might preclude use of certain methods. As another, the number of available instructors in relation to projected number of students might prevent use of methods requiring small instructor-student ratios. Perusal of the requirements for each method will assist in determination of capability of the method for achieving desired objectives under such limitations.

Figure 1 is presented to assist in identification of small-group methods that will accomplish desired instructional objectives. To use Figure 1, select the desired objective from among those listed and note each method for which an "X" appears in the row for that objective. Then, refer to the discussion of the indicated methods for details as to requirements and procedures for their use.

In the outline-discussion of each method, Item 13 presents one or more references specific to use of that method. In addition, the final section of Part I is a list of selected references that will provide both specific and general information concerning the use of small-group methods of instruction.

## Instructional Objectives Accomplished by Small-Group Methods

| Instructional Objective | Method | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | A Conference | B Harvard Case Discussion | C Incident-Process Case Discussion | D Abbreviated Printed Case Discussion | E Abbreviated Dramatized Case Discussion | F Topic Discussion | G Buzz Session | H Committee Problem Solving | I Role Playing |
| 1. Increased awareness of issues and problems | | X | X | X | X | X | X | | X |
| 2. Insight into possible problem solutions | X | X | X | | X | | | | X |
| 3. Cognitive learning of course content | | | | | | X | | X | |
| 4. Increased skill in problem diagnosis | | X | X | X | X | | | | X |
| 5. Increased awareness of diversity of viewpoints | X | X | X | X | X | | | | |
| 6. Positive attitudes toward course content | X | | | | | | | | |
| 7. Positive attitudes toward use of course content | X | | | | | | | | |
| 8. Improved problem-solving skills | | | | | | | | X | |
| 9. Increased skill in group decision making | | | | | | | | X | |
| 10. Increased skill in fact finding | | | X | | | | | X | |
| 11. Increased knowledge about specific topics or problem areas | | | | | | | | X | |
| 12. Skill in diagnosing interpersonal situations | | | | | | | | | X |
| 13. Skill in acting effectively in interpersonal situations | | | | | | | | | X |

Figure 1

# A

# Conference Method

## 1. Brief Description

One or, more often, a series of carefully planned meetings with specific goals, in which students pool ideas in order to solve collective or individual problems.

The instructor (conference leader) does not present theory, principles, doctrine, or ways of handling problems. Rather, the group is presented with a topic or a problem and members draw upon their own experience and opinions for possible ways of handling it. Therefore, group members must have a background of experience or information pertinent to the topic or problem, if the method is to be used successfully. The role of the instructor (conference leader) is not to supply answers or information, but to help the group to define problems and develop solutions by guiding and controlling the discussion so that it is constantly directed toward program objectives.

The essence of the conference method is that it is a deliberative, thinking process guided and directed by a competent leader. Ideas and solutions evolve from the experience and thinking of group members and not the leader, even though the leader may, by careful questioning and controlled discussion, guide the group toward anticipated, or even preconceived, conclusions.

## 2. Objectives Most Likely to be Achieved

- Cognitive insight into practical problems.
- Insight into possible problem solutions.
- An increased awareness of a diversity of viewpoints that may exist concerning a single problem or issue.
- Positive attitudes toward the course of instruction.
- Positive attitudes toward use of course content.

## 3. Recommended Uses

- To broaden thinking and attitudes of job incumbents. Especially useful in lower-level supervisory and leadership training.

- To develop tentative solutions to difficult practical problems.
- To develop insights into practical consequences and problems of application following introduction of new methods, techniques, or procedures.

## 4. Rationale

The forces inherent in groups, student-centered discussion, and emphasis upon practical problems will generate greater interest and involvement, will result in increased understanding of issues and problems, and will result in increased commitment to problem solutions.

## 5. Time Requirements

Optimum - 2 hours
Maximum - 3 hours
Minimum - 1 hour

## 6. Instructor Requirements

a. Instructor-Student Ratio

Maximum ratio of one instructor to 20 students. Preferred ratio of one instructor to 12 students. One instructor is required for each discussion group.

b. Content Expertise

Helpful but not essential.

c. Proficiency Requirements

(1) Proficiency as an Instructor

No special teaching skills required.

(2) Proficiency With the Method

Moderate proficiency with the method is necessary; expert proficiency is desirable.

d. Experience Requirements

(1) Experience as an Instructor

Helpful but not essential.

(2) Experience With the Method

Moderate experience is desirable.

## 7. Student Requirements

a. Number

Optimum - 12 per group
Maximum - 20 per group
Minimum - 10 per group

b. Prior Experience With Method

Not required.

c. Prior Knowledge or Experience With Content

Experience or information concerned with content is essential for all or most of students.

Note: It is important that all students be approximately similar in educational level, rank, and job level.

Note: Highly educated or highly competent individuals frequently react negatively to the conference method.

## 8. Materials

One lined tablet per student.

One pencil per student.

Printed agenda or program schedule (one per student).

A 5" x 8" blank name card (one per student).

## 9. Facilities

One 20-student conference room per group.

One chair for each student.

One conference table per group.

One chalk board or chart pad and easel per group.

## 10. Student Preparation

a. None required.

b. Quality of the discussion is enhanced when students are assigned relevant material for background reading prior to the discussion.

c. Quality of the discussion will be enhanced if preceded or accompanied by a film or other presentation designed to provide background information and to focus attention upon critical issues.

## 11. Instructor Preparation

a. Careful planning of each session is necessary if the conference method is to be successful.

b. In addition to administrative details, the instructor must acquire a thorough knowledge of the subject matter, prepare a discussion plan, and get thoroughly acquainted with the use of the plan. He or she must be familiar with the subject matter, must anticipate situations and problems that may arise during the discussion, must have some sort of time table for effective utilization of time, and must have thought out the most effective way of introducing material, provoking discussion, and guiding thinking toward the planned conclusions.

c. The discussion plan should be a working guide, allowing a great deal of flexibility, and not a script to be followed rigidly during the meeting. The plan should include:

- Introductory remarks, to include the objectives of the conference session.
- The logical sequence of subject matter to be covered.
- Key points to be covered.
- Questions to be asked.
- Aids and materials to be used.
- Conclusions that might be reached.
- Projected summary remarks.

d. Unless the instructor is highly familiar with topic content, background reading will be desirable.

## 12. Procedures for Use of Method

a. First Session Only

(1) The conference leader should introduce himself by writing his name on the chalk board and indicating by what name he desires the group to address him.

(2) Distribute 5"x8" blank cards to each student, asking that the card be folded lengthwise so that it will stand up. Instruct each student to print, in large letters, full name (and organization if relevant) on both sides of the card.

(3) Make some brief introductory remarks concerning the purpose of the conference and the theme of the conference. Keep opening remarks short.

(4) Emphasize the following:

- That the conference leader does not consider himself an expert or an authority. He cannot answer all the questions that will be raised or offer solutions for all the problems that are presented.
- That the conference leader's chief function will be to raise questions and problems, to keep the discussion on the topic being considered, to act as chairman, and to help the group summarize its thinking and arrive at conclusions.
- That every member of the group can help by entering into the discussion and speaking freely, giving the group the benefit of his viewpoint and experience, and giving others a chance to express their opinions.
- That the conference leader has no special personal ideas to present to the group. All decisions will represent the collective thinking of the group.
- That only one person should talk at a time.
- That opinions should be expressed briefly.

b. All Sessions

(1) Introduce the topic of the session.

(2) Follow the discussion plan.

(3) Plan questions carefully.

(4) Avoid directing all questions to the group at large. Occasionally a question should be directed to a group member who has had little or no part in the discussion.

(5) Ask thought-provoking questions.

(6) Keep the discussion on the topic and directed toward the attainment of the conference objectives. An occasional sidetrack is permissible, but don't get completely off the subject.

(7) Encourage different points of view. If certain aspects of a problem are being neglected, point them out.

(8) Don't wear out points of discussion.

(9) Give an occasional summary. Be accurate. Give the high points and issues as presented in the discussion, not personal opinions.

(10) It is important that the leader have complete control of the meeting, without seeming to be authoritarian or officious. This does not mean that the leader should openly attempt to control decisions. The conference leader should not allow himself to be set up as an expert or final authority on any point which is raised.

(11) Provide a final summary of the session. Re-emphasize and restate important points, ideas, and decisions arrived at by the group. The summary can also be used as an opportunity to stress the importance of putting conclusions into practice.

c. Final Session Only

After the topic for the final session has been discussed and concluded, summarize the entire series of conferences.

## 13. References

Busch, H.M. *Conference Methods in Industry*, Harper and Brothers, New York, 1949.

Civilian Personnel Section, Department of the Army. *Guide for Supervisor Development in the Department of the Army*, Civilian Personnel Pamphlet 41-C, November 1953, pp. 27-47.

Dean, R.L. "The Conference Method: Panacea or Paradox?" *Journal of the American Society of Training Directors*, vol. 13, 1959, pp. 8-15.

# B

# Harvard Case Discussion

## 1. Brief Description

Group discussion of a printed case which describes an actual situation, together with all surrounding facts, contributing factors, and incidental conditions.

Cases are presented to students for considered analysis, open discussion, and final decision as to the action which should be taken. Because cases are lengthy and complex, they must be assigned for reading and analysis prior to the class meeting. At the option of the instructor, written analyses of the cases may be required prior to class discussion. The instructor plays an active but non-directive role in stimulating discussion and encouraging mature analysis.

Composition of the case is a highly important and critical determinant of success with this method. Although single case-discussion sessions may be beneficial, maximum learning occurs from repeated exposure to analysis and discussion of a variety of cases.

## 2. Objectives Most Likely to be Achieved

- Increased skill in problem diagnosis.
- Increased awareness of issues and problems.
- Superficial insight into possible problem solutions.
- Increased awareness of a diversity of viewpoints that may exist concerning a single problem or issue.

## 3. Recommended Uses

- To develop problem-solving skills by discussion of each of a series of cases periodically throughout a course of instruction.
- Harvard Case Discussion may be used in conjunction with lectures or other formal presentations; however, it can be very effectively used as the sole method in an advanced course after students have been exposed to content fundamentals in an earlier lecture course.

## 4. Rationale

Independent thinking, responsible judgment, problem-solving skills, and a fact-finding approach to problems will be developed when students are confronted with "real" situations that must be analyzed, and are required to submit their analyses to the criticism of contemporaries.

## 5. Time Requirements

Optimum - 2 hours
Maximum - 2 hours
Minimum - 1 hour

## 6. Instructor Requirements

a. Instructor-Student Ratio

Maximum ratio of one instructor to 20 students. One instructor is required for each discussion group.

b. Content Expertise

(1) A high level of content expertise is required by instructor.

(2) A high level of content expertise is required by individual who composes the cases.

c. Proficiency Requirements

(1) Proficiency as an Instructor.

Proficiency in instructing through class discussion is required.

(2) Proficiency With the Method

A high level of proficiency in case analysis and in non-directive leading of case discussions is required. Minimal results may be obtained with moderate proficiency in the method. Directive discussion leadership is not desirable.

d. Experience Requirements

(1) Experience as an Instructor

At minimum, moderate experience as an instructor is required; extensive experience as an instructor is desirable.

(2) Experience With the Method

At minimum, moderate experience with the method is essential; extensive experience with the method is desirable for best results.

## 7. Student Requirements

a. Number

(1) Optimum - 15 per group
(2) Maximum - 20 per group
(3) Minimum - 10 per group

b. Prior Experience With Method

Helpful but not required. Quality of problem analyses and of learning will improve with experience.

c. Prior Knowledge or Experience With Content

Desirable. Some knowledge of relevant content will improve quality of case analysis and case discussion.

## 8. Materials Required

Printed case (One per student).

Note: The quality of the printed case is critical to this method. A teaching case is a carefully designed description of a problem situation, written specifically for the purpose of provoking systematic analysis and discussion. As such, it does not necessarily represent a complete description of all facts and events. The case must be composed with the objective of creating a challenging problem for the student and the outcome is never revealed—the case is brought to a point requiring decision and action, then it stops. Success of the method requires that cases be structured so as to challenge mature analysis and stimulate discussion.

Printed discussion of guidance for conducting a case analysis. To be distributed at time of assignment of first case (One per student). (Optional)

## 9. Facilities Required

One 20-student classroom or conference room per group.

One chair for each student.

One chalk board per group.

## 10. Student Preparation Required

a. Each student should read the case and prepare a case analysis in advance of the case discussion.

b. Learning is enhanced if students are required to submit a written case analysis prior to the case discussion. (Optional)

c. Quality of case analyses and of case discussion is enhanced when students are concurrently assigned related material for background reading prior to the case discussion.

## 11. Instructor Preparation Required

a. The instructor should read the case and prepare a case analysis prior to the class meeting, noting for reference during the class discussion points such as critical issues, items to be emphasized, and alternative solutions.

b. Background reading in the content area will be helpful for enriching the class discussion and for use in summary remarks.

## 12. Procedures for Use of Method

a. First Session—Introduce the method and hand out guidance for case analysis (if used) when first case is assigned.

b. Introduce the case by briefly summarizing the situation as described in the printed case. Do not analyze the case or go beyond the facts presented in it. Merely summarize the situation exactly as presented in the printed case.

c. Ask, "Who would like to give an analysis of the case?"

d. Select one volunteer and let him present his informal discussion of the case.

e. From this point, discussion will most probably be spontaneous and the instructor will only need to recognize those individuals who desire to discuss the case.

f. As each student contributes to the discussion, it is desirable for the instructor to ask for clarification, ask for reactions of other students, or raise a point that seems particularly useful for learning. However, the instructor should not interject opinions, solutions, or ideas into the discussion.

g. At all times throughout the discussion, the instructor should be "non-directive," i.e., should question, raise issues, or restate salient points. The instructor should not direct the course of the discussion and should raise critical issues or points only after being satisfied that they will not be raised by members of the class.

h. It is helpful for the instructor to write noteworthy points upon the chalk board as the discussion progresses.

i. At the conclusion of the discussion period, summarize the discussion. After summarizing the students' discussion, the instructor may, at his option, take a final position on the solutions and the viewpoints which have been presented by the class. In addition, he may critique the quality of the case analysis.

## 13. References

Andrews, K.R. (ed.) *The Case Method of Teaching Human Relations and Administration*, Harvard University Press, Cambridge, 1960.

# C

# Incident-Process Case Discussion

## 1. Brief Description

A brief printed description of an incident requiring adjudication or decision is presented; the group must decide what additional information is required.

The discussion leader, usually but not necessarily an instructor, is provided with additional background and factual material which he furnishes only as members of the group request specific items of information. If the information is not requested, the discussion leader does not provide it. Thus, students may finally be required to decide a case on the basis of only partial information because they failed to elicit all data needed to make a valid decision. After obtaining the desired information, each student writes his decision and the supporting reasons for it. The decisions are presented publicly by the students and debated with pressure by the leader toward arriving at a common conclusion. The students then hear the real, or preferred, decision and analyze the adequacy or inadequacy of their own fact finding and decision making in contrast with it.

## 2. Objectives Most Likely to be Achieved

- Increased skill in problem diagnosis.
- Increased skill in fact finding—in identifying and assessing information needed for making decisions and solving problems.
- An increased awareness of issues and problems.
- Superficial insight into possible problem solutions.
- An increased awareness of a diversity of viewpoints that may exist concerning a single problem or issue.

## 3. Recommended Uses

- To develop fact-finding skills by analysis and discussion of each of a series of cases periodically throughout a course of instruction.
- This method of case discussion may be used in conjunction with lectures or other formal presentations, or it may be used as the only method throughout a course of instruction.

## 4. Rationale

Fact finding and problem-solving skills will be developed when students are confronted with realistic but brief situations about which they must seek and assess additional information relevant to the problem. Furthermore, skills in making decisions will be developed when students have the opportunity to compare the adequacy or inadequacy of their decisions against the real decision or one prepared by an expert.

## 5. Time Requirements

Optimum - 90 minutes
Maximum - 2 hours
Minimum - 60 minutes

## 6. Instructor Requirements

a. Instructor-Student Ratio

Maximum ratio of one instructor to 20 students. One instructor is required for each discussion group.

b. Content Expertise

(1) A high level of content expertise is required by instructor.

(2) A high level of content expertise is required by individual who writes the case materials.

c. Proficiency Requirements

(1) Proficiency as an Instructor

Proficiency in instructing through class discussion is required.

(2) Proficiency With the Method

Best results are obtained when the instructor possesses a high level of proficiency in leading case discussions. Optimal results may be obtained with moderate proficiency with the method. A thorough understanding of the rationale and procedures for the method is essential.

d. Experience Requirements

(1) Experience as an Instructor

At minimum, moderate experience as an instructor is desirable.

(2) Experience With the Method

At minimum, moderate experience with the method is essential for best results.

## 7. Student Requirements

a. Number

Optimum - 15 per group
Maximum - 20 per group
Minimum - 10 per group

b. Prior Experience With Method

Helpful but not required. Quality of problem analyses, fact finding, and of learning will improve with experience.

c. Prior Knowledge or Experience With Content

Desired.

## 8. Materials

Printed case. (One per student)

Printed additional facts and background information for use by instructor or discussion leader. (One per group)

Printed procedures for conducting a case analysis and participating in the incident-process fact finding and case discussions. (One per student)

## 9. Facilities

One 20-student classroom or conference room per group.

One chair for each student.

One chalk board per group.

## 10. Student Preparation

a. Reading of cases prior to class meetings is not desirable.

b. Quality of case analyses and of case discussions is enhanced when students are assigned related material for background reading prior to the case discussion.

## 11. Instructor Preparation

a. The instructor should read the case and prepare an analysis prior to the class meeting, and should become familiar with the available facts and background information so that they may be provided readily upon student request. Note should be made, for reference during the class discussion, of points such as critical issues, items to be emphasized, and alternative solutions.

b. Background reading in the content area will be helpful for enriching the class discussion and for use in summary remarks.

## 12. Procedures for Use of Method

a. If class has no prior experience with the method, introduce and describe the procedures to be followed. Emphasize:

(1) Case will be brief description of incident.

(2) Students should note additional information desired.

(3) If information is known, it will be provided.

(4) After fact-finding discussion, students will write a case analysis in brief.

(5) The case will then be discussed by the class.

(6) Student solutions will be compared with real or preferred solution.

Hand out printed outline of procedures.

b. Hand out case.

c. Allow students to read case and note information required. (Allow 15 minutes)

d. Hold fact-finding discussion. Invite students to request additional information. Requests from students should be specific. Do not respond to general requests for additional information. Do not volunteer any information not specifically requested. Provide all information that is specifically requested, if available. Do not provide unrequested information and do not speculate about information that is not available.

e. Instruct students to briefly analyze the case in writing. The analysis need not be comprehensive but should include important points, factors contributing to the situation, and a solution.

f. Briefly summarize the case including a summary of the additional information brought out through student questioning. Do not analyze the case or go beyond the facts as brought out. Merely summarize the facts and the situation exactly as presented in the case and as additionally revealed by student questioning.

g. Ask, "Who would like to give an analysis of the case?"

h. Select one volunteer and let him present his informal discussion of the case. Insist upon a discussion of facts and factors contributing to the situation before discussion of solutions.

i. From this point, discussion will most probably be spontaneous and the instructor will only need to recognize those individuals who desire to present their case analyses.

j. As each student contributes to the discussion, it is permissible for the instructor to ask for clarification, to ask for reactions of other students, or to raise a point that seems to be particularly useful for learning. The instructor should not interject personal opinions, solutions, or ideas into the discussion; however, as the discussion develops, it is permissible to question the factual bases of student contributions, if these contributions seem to go beyond the facts or information that was available.

k. After bringing out all discussion concerning facts and factors that contribute to the case, the instructor should shift the direction of the discussion to possible solutions. Push the discussion toward obtaining a consensus upon one solution.

l. Read the real or preferred solution to include the supporting rationale.

m. Lead a discussion of the real or preferred solution and its comparability with the students' solution.

n. At conclusion of the discussion period, summarize the outcome of the discussion. In addition, the instructor may, at his option, critique the quality of the fact finding and case analyses.

## 13. References

Pigors, P., and Pigors, F. "Case Methods on the Spot," *Adult Leadership*, vol. 6, 1954, pp. 7-8 and 28-29.

Pigors, P., and Pigors, F. "The Incident Process - Learning by Doing," in *The Planning of Change: Readings in the Behavioral Sciences*, W.G. Bennis, K.D. Benne, and R. Chin (eds.), Holt, Rinehart, and Winston, New York, 1961, pp. 710-715.

# D

# Abbreviated Printed Case Discussion

## 1. Brief Description

Group discussion of a brief printed case which describes the major points of a real life situation.

The instructor plays an active but non-directive role in stimulating discussion and encouraging mature problem analysis. Because cases are brief, they may be assigned either in advance or at the beginning of the class meeting.

## 2. Objectives Most Likely to be Achieved

- Increased skill in problem diagnosis.
- Increased awareness of issues and problems.
- Superficial insight into possible problem solutions.
- Increased awareness of a diversity of viewpoints that may exist concerning a single problem or issue.

## 3. Recommended Uses

- To develop problem-solving skills by discussion of each of a series of cases periodically throughout a course of instruction.
- Case discussion may be used in conjunction with lectures or other formal presentations, or it may be used as the only method throughout a course of instruction.

## 4. Rationale

Independent thinking, responsible judgment, problem-solving skills and a fact-finding approach to problems will be developed when students are confronted with "real" situations that must be analyzed, and are required to submit their analyses to the criticism of contemporaries.

## 5. Time Requirements

Optimum - 40 minutes
Maximum - 60 minutes
Minimum - 30 minutes

Note: If case is not assigned for advanced reading prior to the class meeting, add 15 minutes for reading of the case.

## 6. Instructor Requirements

a. Instructor-Student Ratio

Maximum ratio of one instructor to 20 students. One instructor is required for each discussion group.

b. Content Expertise

(1) High level of content expertise is required by instructor.

(2) High level of content expertise is required by individual who writes the cases.

c. Proficiency Requirements

(1) Proficiency as an Instructor

Proficiency in instructing through class discussion is required.

(2) Proficiency With the Method

Best results are obtained when the instructor possesses a high level of proficiency in non-directive leading of case discussions. Optimal results may be obtained with moderate proficiency in the method. Directive discussion leadership is not desirable.

d. Experience Requirements

(1) Experience as an Instructor

At minimum, moderate experience as an instructor is desirable.

(2) Experience With the Method

At minimum, moderate experience with the method is essential for best results.

## 7. Student Requirements

a. Number

Optimum - 15 per group
Maximum - 20 per group
Minimum - 10 per group

b. Prior Experience With Method

Helpful but not required. Quality of problem analyses and of learning will improve with experience.

c. Prior Knowledge or Experience With Content

Helpful but not essential. In some instances, long experience with course content may be an impediment to learning with this method.

## 8. Materials Required

Printed case. (One per student)

Printed discussion of guidance for conducting a case analysis. To be distributed at time of assignment of first case. (One per student) (Optional)

## 9. Facilities Required

One 20-student classroom or conference room per group.

One chair for each student.

One chalk board per group.

## 10. Student Preparation

a. Each student should read the case and prepare a case analysis before the case discussion. Best results are obtained when the case is assigned in advance of the class meeting.

b. Learning is enhanced if students are required to submit a written case analysis prior to the case discussion. (Optional)

c. Quality of case analyses and of case discussion is enhanced when students are assigned related material for background reading prior to the case discussion.

## 11. Instructor Preparation

a. The instructor should read the case and prepare an analysis prior to the class meeting, noting for reference during the class discussion points such as critical issues, items to be emphasized, and alternative solutions.

b. Background reading in the content area will be helpful for enriching the class discussion and for use in summary remarks.

## 12. Procedures for Use of Method

a. First session - Introduce the method and hand out guidance for case analysis (if used).

b. If case is not assigned in advance, hand out case and instruct students to read it.

c. Briefly introduce the case by summarizing the situation as described in the printed case. Do not analyze the case or go beyond the facts presented in it. Merely summarize the situation exactly as presented in the printed case.

d. Ask, "Who would like to give an analysis of the case?"

e. Select one volunteer to present an informal discussion of the case.

f. From this point, discussion will most probably be spontaneous and the instructor will only need to recognize those individuals who desire to discuss the case.

g. As each student contributes to the discussion, it is desirable for the instructor to ask for clarification, ask for reaction of other students, or raise a point that seems to be particularly useful for learning. However, the instructor should not interject personal opinions, solutions, or ideas into the discussion.

h. At all times through the discussion, the instructor should be "non-directive," i.e., should question, raise issues, or restate salient points, but should not direct the course of the discussion and should raise critical issues or points only after being satisfied that they will not be raised by members of the class.

i. At the conclusion of the discussion period, summarize the discussion. After summarizing the students' discussion, the instructor may choose to take a final position on the solutions and the viewpoints which have been presented by the class. In addition, he may critique the quality of the case analysis.

## 13. References

Nicholson, S. "Training Managers by the Case Method," *Management Record*, vol. 18, 1956, pp. 18-120 and 147-150.

# E

# Abbreviated Dramatized Case Discussion

## 1. Brief Description

Group discussion of a dramatized case which is presented through the medium of either tape recordings or film.

The instructor plays an active but non-directive role in stimulating discussion and encouraging mature problem analysis. Cases are usually limited to human relations or leadership problems.

## 2. Objectives Most Likely to be Achieved

- Increased skill in problem diagnosis.
- Increased awareness of issues and problems.
- Superficial insight into possible problem solutions.
- Increased awareness of a diversity of viewpoints that may exist concerning a single problem or issue.

## 3. Recommended Uses

- To develop problem-solving skills by discussion of each of a series of cases periodically throughout a course of instruction.
- Case discussion may be used in conjunction with lectures or other formal presentations, or it may be used as the only method throughout a course of instruction.

## 4. Rationale

Independent thinking, responsible judgment, problem-solving skills, and a fact-finding approach to problems will be developed when students are confronted with "real" situations that must be analyzed, and are required to submit their analyses to the criticism of contemporaries.

## 5. Time Requirements

Optimum - 40 minutes
Maximum - 60 minutes
Minimum - 40 minutes

Note: The above time requirements include time required for presentation of a taped or filmed case, based on a maximum time of 10 minutes for presentation. If time for presentation of the case is longer than 10 minutes, the above time requirements should be extended accordingly.

## 6. Instructor Requirements

a. Instructor-Student Ratio

Maximum ratio of one instructor to 20 students. One instructor is required for each discussion group.

b. Content Expertise

(1) High level of content expertise is required by instructor.

(2) High level of content expertise is required by individual who constructs the cases.

c. Proficiency Requirements

(1) Proficiency as an Instructor

Proficiency in instructing through class discussion is required.

(2) Proficiency With the Method

Best results are obtained when the instructor possesses a high level of proficiency in nondirective leading of case discussions. Optimal results may be obtained with moderate proficiency in the method. Directive discussion leadership is not desirable.

d. Experience Requirements

(1) Experience as an Instructor

At minimum, moderate experience as an instructor is desirable.

(2) Experience With the Method

At minimum, moderate experience with the method is essential for best results.

## 7. Student Requirements

a. Number

Optimum - 15 per group
Maximum - 20 per group
Minimum - 10 per group

b. Prior Experience With Method

Helpful but not required. Quality of problem analyses and of learning will improve with experience.

c. Prior Knowledge or Experience With Content

Helpful but not essential. In some instances, long experience with course content may be an impediment to learning with this method.

## 8. Materials Required

One filmed or tape-recorded case per session.

Printed discussion of guidance for conducting a case analysis. To be distributed prior to presentation of first case. (One per student) (Optional)

## 9. Facilities Required

One 20-student classroom or conference room per group.

One chair for each student.

One chalk board per group.

As appropriate, a film projector and screen or tape recorder.

## 10. Student Preparation Required

Quality of case analyses and of case discussion is enhanced when students are assigned related material for background reading prior to the case presentation and case discussion.

## 11. Instructor Preparation Required

a. Instructor should view or listen to the case and prepare an analysis prior to the class meeting, noting for reference during the class discussion points such as critical issues, items to be emphasized, and alternative solutions.

b. Background reading in the relevant content area will be helpful for enriching the class discussion and for use in summary remarks.

## 12. Procedures for Use of Method

a. First session - Introduce the method and hand out guidance for case analysis (if used).

b. Present case by film or tape recording.

c. After conclusion of the case presentation, briefly summarize the case by summarizing the situation as it occurred. Do not analyze the case or go beyond the facts presented in the case. Merely summarize the facts and the situation exactly as presented in the case.

d. Ask, "Who would like to give an analysis of the case?"

e. Select one volunteer to present an informal discussion of the case.

f. From this point, discussion will most probably be spontaneous and the instructor will only need to recognize those individuals who desire to discuss the case.

g. As each student contributes to the discussion, it is permissible for the instructor to ask for clarification, ask for reactions of other students, or raise a point that seems to be particularly useful for learning. However, the instructor should not interject personal opinions, solutions, or ideas into the discussion,

h. At all times throughout the discussion, the instructor should be "non-directive," i.e., should question, raise issues, or restate salient points, but should not direct the course of the discussion and should raise critical

issues or points only after being satisfied that they will not be raised by members of the class.

i. At the conclusion of the discussion period, summarize the discussion. After summarizing the students' discussion, the instructor may choose to take a final position on the solutions and the viewpoints which have been presented by the class. In addition, the instructor may critique the quality of the case analysis.

## 13. References

Jacobs, T.O. *A Program of Leadership Instruction for Junior Officers*, Technical Report 84, Human Resources Research Organization, Alexandria, Virginia, June 1963.

Lange, Carl J., Rittenhouse, Carl H., Atkinson, Richard C. *Films and Group Discussions as a Means of Training Leaders*, Technical Report 27, Human Resources Research Organization, Alexandria, Virginia, March 1956.

# F

# Topic Discussion

## 1. Brief Description

Group discussion of an assigned topic, issue, or problem in which no instructor is present and in which the content and course of the discussion is determined almost completely by the participants.

Frequently used to "sub-group" large-group sessions. Following Topic Discussions, representatives of the groups may be organized into a panel to report to the large group and discuss results, resolve differences, and so forth.

## 2. Objectives Most Likely to be Achieved

- Increased awareness of issues and problems.
- Superficial insight into possible problem solutions.
- Some cognitive learning of course content, when discussion is carefully controlled through introduction of advanced reading, discussion guides, and pre-administration announcement of achievement test items.

## 3. Recommended Uses

- To introduce problems or focus attention of students upon critical issues prior to a formal presentation such as lecture, film, or demonstration.
- To develop tentative solutions after problems have been posed in a formal presentation.
- To develop insights into practical consequences and barriers to application following introduction of new methods or techniques by lecture, film, or demonstration.
- To reinforce learning through student exchange of ideas, as a supplement to formal instruction.

## 4. Rationale

The forces inherent in groups and spontaneous, student-centered discussion will generate greater interest and involvement with a topic and will result in an increased sensitivity to issues and problems.

## 5. Time Requirements

Optimum - 45 minutes
Maximum - 60 minutes
Minimum - 30 minutes

Note: If groups are small (5 or 6 people) and discussion is limited to one topic, issue, or problem, minimum allowable time might be reduced to 20 minutes. Time allocation of less than 20 minutes is not recommended except when method is used to introduce a formal presentation. If used in conjunction with panel, allow additional 30 minutes for panel discussion.

## 6. Instructor Requirements

a. Instructor-Student Ratio

Unlimited. Since instructors need not be present for Topic Discussions, the role of an instructor is restricted to assignment of topics for discussion and to provision of guidance concerning procedures and organization of the discussion groups. Accordingly, one instructor can supervise a number of groups simultaneously.

b. Content Expertise

(1) Required by the individual who develops discussion topics.

(2) Not essential, but helpful, for instructor who is responsible for organization and supervision of discussion groups.

c. Proficiency Requirements

(1) Proficiency as an Instructor

No special teaching skills required.

(2) Proficiency With the Method

Knowledge is required of procedures for assigning discussion topics, for assigning personnel to groups, for providing guidance for conducting the discussion, and, if the method is followed by panel discussion, of

procedures for recording and reporting results of the discussion.

d. Experience Requirements

(1) Experience as an Instructor

Helpful but not essential.

(2) Experience With the Method

Helpful but not essential.

## 7. Student Requirements

a. Number

Optimum - 10 per group
Maximum - 15 per group
Minimum - 5 per group

Note: When this method is used to break a large class into sub-groups, total number of students that can be accommodated at one time is limited only by availability of facilities for holding small-group sessions. However, if Topic Discussions are followed by panel sessions, the number of small groups should be limited to six, with total number of students adjusted accordingly, in order to accommodate panel reports within allocated time.

b. Prior Experience With Method

Helpful but not required.

c. Prior Knowledge or Experience With Content

Helpful but not essential.

## 8. Materials

Brief description, or list, of topic(s) or issue(s) to be discussed. (One per student)

Brief list of procedures for conducting and participating in discussion. (One per student) (Optional)

Instructions for recorders (one per group). (Optional—Use only if panel discussion will follow.)

## 9. Facilities

a. Ideal

Separate small room for each group.

One chair for each student.

One chalk board or chart pad and easel per group.

b. Minimal

One large room of sufficient area that groups can be separated so that discussions can be conducted without serious interruption. For example, one 50-student classroom will accommodate five 10-student groups when one group is placed in each corner and one is placed in the center of the room.

One chair for each student.

## 10. Student Preparation

a. Student preparation is not essential if students possess experience or background pertinent to the topic, issue, or problem to be discussed.

b. Quality of the discussion is greatly enhanced when students are assigned relevant material for background reading or research prior to the discussion.

c. If appropriate reading material is not available, quality of the discussion will be enhanced if preceded or accompanied by a lecture, film, or other presentation designed to provide background information and to focus attention upon critical issues.

## 11. Instructor Preparation

a. Planning is required of brief introductory remarks designed to focus attention of students upon the discussion topic.

b. When Topic Discussion is used in conjunction with a formal presentation, the instructor, or some other individual, must prepare and present the appropriate lecture or demonstration.

c. Background reading will be helpful for introductory and summary remarks.

## 12. Procedures for Use of Method

a. Introduction of problems or issues prior to formal presentation:

(1) Briefly introduce in general terms the topic to be discussed. Do not indicate desired conclusions or trends the discussion should take.

(2) State general objectives of the session, e.g., "to identify issues," "to specify problems," "to focus upon difficult problems in implementation," etc.

(3) Instruct the class concerning discussion procedures. If handout list of discussion procedures is to be used, this instruction can be general (e.g., statement of topic(s) to be discussed, time permitted for discussion, etc.).

(4) Hand out topic descriptions and, if used, list of discussion procedures.

(5) If appropriate, divide class into groups.

(6) Assign groups to discussion rooms or areas.

(7) Groups move to discussion areas.

(8) Groups begin discussion.

(9) Alert each group five minutes before end of discussion period.

(10) Recall groups and reassemble class.

(11) Instructor leads brief class discussion of groups' conclusions.

(12) Conduct formal presentation.

b. Development of problem solutions or insights for application, after formal presentation.

(1) State general objectives of the session, e.g., "to develop possible solutions to problems posed in the lecture," "to identify possible consequences or barriers to application of the techniques presented in the demonstration," "to obtain greater understanding of the topic through exchange of ideas concerning the issues that were raised during the lecture," etc.

(2) Instruct the class concerning discussion procedures. If handout list of discussion procedures is to be used, this instruction can be general (e.g., statement of topics to be discussed, time permitted for discussion, etc.). If the group session is to be followed by panel discussion, describe the role of group recorder (to note main points of discussion and any conclusions reached by the group, and to represent group in later panel discussion) and instruct groups to select a recorder as soon as they convene.

(3) Hand out topic descriptions and, if used, list of discussion procedures.

(4) If appropriate, divide class into groups.

(5) Assign groups to discussion rooms or areas.

(6) Groups move to discussion areas.

(7) If appropriate, groups select recorders.

(8) If appropriate, visit each group and hand out instructions for recorders.

(9) Alert each group five minutes before end of discussion period.

(10) Recall groups and reassemble class.

(11) If panel discussion is not used, lead general class discussion of groups' conclusions.

(12) If panel discussion is used:

- Assemble recorders at table or in chairs at front of class.
- Instructor serves as moderator while recorders report groups' conclusions and discuss agreements or differences between them.

(13) Instructor briefly summarizes outcome of panel discussion and, if appropriate, relates panel's conclusions to content of formal presentation.

## 13. References

Bergevin, P., and Morris, D. *A Manual for Discussion Leaders and Participants*, Community Services in Education, Bloomington, Indiana, 1954.

Maier, N.R.F. *Problem Solving Discussions and Conferences*, McGraw-Hill Book Co., New York, 1963.

# G

# Buzz Session

## 1. Brief Description

A brief but intensive discussion of an assigned topic, issue, or problem held among a small number of participants without advanced preparation and with a minimum of formality.

The instructor does not participate in the discussion, and the content and course of the classroom are determined almost completely by the participants.

## 2. Objectives Most Likely to be Achieved

- Increased awareness of issues and problems.
- Increased involvement with course content and increased participation in class discussions.
- Some improvement in ability to solve problems that have been discussed during the buzz session.

## 3. Recommended Uses

- To introduce problems or focus attention of students upon critical issues prior to a formal presentation such as lecture, film, or demonstration.
- To conduct a census of student questions to be answered by instructor or speaker during later formal presentation or instructor's discussion.

## 4. Rationale

The forces inherent in groups and spontaneous, student-centered discussion will generate greater interest and involvement with a topic and will result in an increased sensitivity to issues and problems.

## 5. Time Requirements

Optimum - 10 minutes
Maximum - 15 minutes
Minimum - 6 minutes

## 6. Instructor Requirements

a. Instructor-Student Ratio

Unlimited. Since instructors need not be present during group discussions, the role of an instructor is restricted to assignment of topics for discussion and to provision of guidance concerning procedures and organization of the discussion groups. Accordingly, one instructor can supervise a large number of groups simultaneously.

b. Content Expertise

(1) Helpful for the individual who develops discussion topics.

(2) Not essential, but helpful, for instructor who is responsible for organization and supervision of discussion groups.

c. Proficiency Requirements

(1) Proficiency as an Instructor

No special teaching skills required.

(2) Proficiency With the Method

Knowledge is required of procedures for assigning discussion tasks, for assigning personnel to groups, and for providing guidance for conduct of the discussion.

d. Experience Requirements

(1) Experience as an Instructor

Helpful but not essential.

(2) Experience With the Method

Helpful but not essential.

## 7. Student Requirements

a. Number

Optimum - 6 per group
Maximum - 10 per group
Minimum - 4 per group

Note: When this method is used to break a large class into subgroups, total number of students that can be accommodated at one time is limited only by availability of facilities for holding small-group sessions. This method works well for subgrouping very large classes (200 to 300 people).

b. Prior Experience With Method

None required.

c. Prior Knowledge or Experience With Content

Helpful but not essential.

## 8. Materials

No prepared materials are required.

## 9. Facilities

a. Ideal

One large room of sufficient area that groups can assemble in circles throughout the room.

One movable chair for each student.

One chalk board or chart pad and easel per group.

b. Minimal

The method can be satisfactorily used in any classroom, auditorium, or room of comparable size.

One chair for each student; chairs may be anchored.

## 10. Student Preparation

a. Student preparation is not essential if students possess experience or background pertinent to the topic, issue, or problem to be discussed.

b. Quality of the discussion is enhanced when students are assigned relevant material for background reading prior to the discussion.

## 11. Instructor Preparation

a. Planning is required of brief introductory remarks designed to focus attention of students upon the discussion topic or task.

b. Since buzz sessions are most commonly used in conjunction with a formal presentation, the instructor, or some other individual, must prepare and present the appropriate lecture or demonstration, or be prepared to lead a class discussion.

c. Background reading will be helpful for introductory and summary remarks and for leading a class discussion, if required.

## 12. Procedures for Use of Method

a. Introduction of problems or issues prior to formal presentation

(1) Briefly introduce in general terms the topic to be discussed. Do not indicate desired conclusions or trends the discussion should take.

(2) State general objectives of the buzz session, e.g., "to identify issues," "to specify problems," "to focus upon difficult problems in implementation," etc.

(3) Instruct the class concerning discussion procedures and time permitted for discussion.

(4) Instruct the class in the most convenient way to break up into groups; for example, everyone in the odd rows stands up, turns his chair around to face the row behind, and then sits down. Those individuals facing each other then divide into groups of desired size, form circles, and start discussing. If chairs

are anchored, students conduct the discussion "in place"; however, groups must be of a smaller size (not more than six individuals) in order that participants can hear and participate in the discussion.

(5) Groups begin discussion.

(6) Alert each group two minutes before end of discussion period.

(7) Recall groups and reassemble class.

(8) Instructor leads brief class discussion of groups' conclusions.

(9) Conduct formal presentation.

b. Census of student questions for later discussion by instructor or speaker.

The procedure is the same as for 12a, above, with the following additions:

(1) State the general objective of the buzz session as "to obtain a list of questions which you desire to be answered or discussed by the instructor or speaker."

(2) Instruct the class to limit its discussion to the development of a list of questions.

(3) Instruct the class to select a recorder within each group.

(4) Instruct recorders to write down all questions developed within the group.

(5) After conclusion of the buzz sessions and before the formal presentation, collect the questions from the recorders.

(6) Discuss the questions during the formal presentation or class discussion.

## 13. References

Beckhard, R. *How to Plan and Conduct Workshops and Conferences*, Associated Press, New York, 1956, pp. 35-37.

Boyd, H. "The 'Buzz' Technique in Training," *Personnel Journal*, June 1952, pp. 49-50.

Thelen, H.A. *The Dynamics of Groups at Work*, University of Chicago Press, Chicago, 1954, pp. 201-210.

# H

# Committee Problem Solving

## 1. Brief Description

Real or hypothetical problems are assigned to small groups of students who work together toward a single, final group product. The method stresses joint effort and collective decision making in group problem solving and research. Problems that are assigned may be such that they can be completed within one class session, in which case they are selected so as to parallel or illustrate ongoing instruction. Alternatively, group projects that require extensive work and research may be assigned to extend over weeks or even a term or semester. In either approach, all facts and information relevant to the problem must be available to students or accessible through research.

## 2. Objectives Most Likely to be Achieved

- Increased skill in the use of problem-solving techniques.
- Increased skill in group decision making.
- Increased skill in fact finding and in the use of information and information sources for the solution of problems.
- Increased knowledge about specific topics or problem areas.

## 3. Recommended Uses

- To train groups of individuals who are required to work together on a daily basis.
- To train students to solve problems relevant to a particular content area.
- To expose students to information and information sources that are not feasible for introduction into formal lectures.

## 4. Rationale

Active participation in a realistic project with a concrete outcome will provide students with practical experience in research, problem solving, and the give and take of group decision making.

## 5. Time Requirements

a. Problems are assigned to be completed within one class session:

Optimum - 3 hours
Maximum - 4 hours
Minimum - 2 hours

b. Projects are assigned to be completed by end of term, semester, or other extended time period:

Although groups should be encouraged to work on projects in free time as required, they should be required to meet periodically on a fixed schedule (e.g., once or twice a week for two-hour sessions).

## 6. Instructor Requirements

a. Instructor-Student Ratio

Unlimited. Since instructors are not present for group deliberations, the role of an instructor is restricted to provision of guidance concerning information sources and possible resolutions of especially difficult problems. However, it is essential that an instructor be available for consultation.

b. Content Expertise

(1) Moderate knowledge of the content field is required.

(2) Expert knowledge of information sources is essential.

c. Proficiency Requirements

(1) Proficiency as an Instructor

No special teaching skills required. Consultation skills are helpful.

(2) Proficiency With the Method

Extensive proficiency with the method as such is not required. However, proficiency with fact finding and problem-solving techniques is necessary for providing guidance to students.

d. Experience Requirements

(1) Experience as an Instructor

Helpful but not essential.

(2) Experience With the Method

Helpful but not essential.

## 7. Student Requirements

a. Number

Optimum - 5 per group
Maximum - 9 per group
Minimum - 3 per group

b. Prior Experience With Method

Not required.

c. Prior Knowledge Or Experience With Content

Not required.

## 8. Materials

Printed bibliographies or lists of information sources as appropriate. These may be single, comprehensive listings covering all topics or problems that are assigned, or they may be separate listings specific to each topic or problem that is assigned. Separate specific listings are recommended where conservation of student effort and time is a consideration. (One per student)

Brief description of the steps in problem solving, research procedures, and group decision-making procedures. (Optional) (One per student)

Printed description of format, quality standards, and target dates for any reports that are required. (One per student)

If project is to be completed within one class session, reference materials should be available within each group's work area.

## 9. Facilities

a. Ideal:

Meeting room for each group, reserved on a periodic schedule.

One conference table.

One chair for each student.

One chalk board per group.

b. Minimal:

This method can be used effectively without provision of group meeting facilities. In this event, students are allowed to meet wherever they desire.

## 10. Student Preparation

a. If problems are assigned to be completed within one class session, students should be required to read background material in advance of the class meeting.

b. If projects are assigned to be completed over an extended period, no preparation in addition to the research to be conducted is required. At the beginning of the course it is helpful to assign outside readings concerned with problem solving, fact finding, and group decision making.

## 11. Instructor Preparation

No instructor preparation is required in addition to development of the materials described in 8, above.

## 12. Procedures for Use of Method

a. Problem is assigned to be completed within one class session:

(1) Briefly introduce the method and describe procedures for its implementation.

(2) Assign students to groups.

(3) Assign a problem or a topic to each group. If comprehensive coverage of a content area is desired, assign a different problem to each group. If focus is upon problem-solving skills and quality of group results, assign the same problem to all groups in order that later comparisons can be made.

(4) Hand out bibliographies or lists of information sources.

(5) Assign groups to work areas.

(6) Instruct each group to select a recorder who will note significant points and results.

(7) Groups move to work areas.

(8) Groups begin work.

(9) Alert each group 30 minutes before end of work period.

(10) Recall groups and reassemble class.

(11) Collect group reports, if written, or require each group's recorder to briefly summarize his group's work.

(12) Instructor leads class discussion of findings and of problems encountered during group deliberations.

Note: When problem is to be completed within one class session, group products cannot be expected to be elaborate and written reports should be limited to brief summaries or lists of findings.

b. Problem is assigned to be accomplished within a term, semester, or extended period:

(1) First Class Meeting

- Briefly introduce the method and describe procedures for its implementation.
- Assign students to groups.
- Assign a problem, project, or topic to each group. If comprehensive coverage of a content area is desired, assign a different problem to each group. If focus is upon problem-solving skills and quality of group results, assign the same problem to all groups.
- Hand out bibliographies or lists of information sources.
- Hand out printed guidance concerning report preparation and discuss reporting requirements.
- Caution groups to maintain a diary of their deliberations and decisions to assist in later reporting.
- Assign groups to work areas if appropriate.
- Assign schedule for groups to consult with instructor or advisors.

(2) Last Class Meeting

- Collect group reports.
- Request group representatives to briefly summarize results.
- Instructor leads class discussion of findings and of problems encountered during group deliberations.

## 13. References

Restle, Frank. *Committee Problem-Solving Techniques at the National War College*, Technical Report 10, Human Resources Research Organization, Alexandria, Virginia, September 1954.

# I

# Role Playing

## 1. Brief Description

A method of portraying human interaction in imaginary situations in such a manner that realistic behavior is elicited.

A situation is presented to the group and some members are asked to assume roles and to enact the situation toward some resolution. Other students observe the behavior of the actors. The scene may be carried to a resolution or the instructor may stop it at some critical point in the action. Following the scene, observations of the audience, as well as thoughts and feelings of the actors, are reported and discussed by the group. In this way, faulty diagnoses, alternative actions, and discrepancies between diagnoses and action can be identified. Alternative ways of handling the situation may be tried by replaying the scene.

Role playing is an exceptionally flexible method which can be used for a variety of purposes under many different conditions.

## 2. Objectives Most Likely to be Achieved

- Increased awareness of issues and problems, especially in interpersonal situations.
- Improved skill in diagnosing interpersonal situations.
- Improved skill in behaving effectively in interpersonal situations.
- Improved insight into possible problem solutions, especially in interpersonal situations.

## 3. Recommended Uses

- To introduce problems or focus attention of students upon critical issues prior to a group discussion.
- To provide experience in diagnosing interpersonal behavior.
- To test group-developed alternative solutions after discussion of a problem.
- To provide practice and critique in specific methods and techniques (e.g., as in teaching conference leading, interviewing, selling, teaching).

## 4. Rationale

Opportunities to observe, experience, and practice actual behavior in contexts similar to reality enable students to translate knowledge so that it becomes significant in their own experience.

## 5. Time Requirements

Optimum - 45 minutes
Maximum - 60 minutes
Minimum - 30 minutes

Note: The cited time requirements include allowances for introduction of the scene, assignment of roles, enactment of the scene, and group discussion, all in relation to one enactment of one scene. If more than one scene is enacted and discussed or if multiple enactments of the same scene are used, time requirements must be adjusted accordingly. The time requirements provided here are those for a typical training situation. Actual time requirements for role playing vary widely according to topic, problem, trainer, and technique used.

## 6. Instructor Requirements

a. Instructor-Student Ratio

Maximum ratio of one instructor to 20 students. One instructor is required for each group.

b. Content Expertise

(1) A moderate level of content expertise is required by instructor.

(2) A high level of content expertise is required by individual who prepares the role-playing materials.

c. Proficiency Requirements

(1) Proficiency as an Instructor.

High proficiency as an ins ctor is desirable; moderate proficiency as n instructor is acceptable.

(2) Proficiency With the Method

Best results are obtained when the instructor possesses a high level of proficiency in conducting role-playing sessions. Optimal results may be obtained with moderate proficiency with the method. A thorough understanding of the rationale and procedures for the method is essential.

d. Experience Requirements

(1) Experience as an Instructor

At minimum, moderate experience as an instructor is desirable.

(2) Experience With the Method

Moderate experience with the method is essential for best results. First-hand experience with role playing and some practice in its use is desirable; however, the method can be used by good instructors who are inexperienced in use of the method—if they thoroughly understand the rationale, purposes, and procedures of role playing.

## 7. Student Requirements

a. Number

Optimum - 15 per group
Maximum - 20 per group
Minimum - 8 per group

b. Prior Experience With Method

Not required.

c. Prior Knowledge or Experience With Content

Helpful but not essential.

## 8. Materials

Printed instructions for role players are required for some role-playing exercises.

Printed instructions for audience observation are required for some role-playing exercises.

## 9. Facilities

One 20-student classroom or conference room per group.

One chair for each student.

One chalk board per group.

One tape recorder for recording and play back of scenes. (Optional)

## 10. Student Preparation

The quality of problem analysis and of group discussions is enhanced when students are assigned related material for background reading prior to the class session.

## 11. Instructor Preparation

a. The instructor should become thoroughly familiar with the problem situation and should prepare an analysis, anticipating various alternative actions and solutions, prior to the class meeting. For reference during the class discussion, points such as critical issues, items to be emphasized, and alternative solutions should be noted.

b. Role-playing behavior is spontaneous. Accordingly, the instructor must be prepared to cope with unanticipated events and outcomes and to adapt his behavior and analysis to whatever develops during enactment of the scene and the ensuing discussion.

## 12. Procedures for Use of Method

a. In general, direction of role playing involves the following broad activities:

(1) A brief introduction of problem.

(2) Assignment of roles to be enacted.

(3) Instructions to audience concerning specific things which should be noted.

(4) Introduction of the scene.

(5) Enactment of the scene.

(6) Reporting of audience observations.

(7) Reporting of actors' impressions and feelings. (Optional)

(8) Discussion of critical events, important issues, and solutions.

(9) Summary remarks and critique by instructor.

b. Specific procedures for conducting role playing vary widely with topic content, problem, and technique used. Therefore, it is impossible to provide guidance concerning the various specific procedures in this handbook. The references cited below are recommended as basic sources for information concerning specific techniques of role playing.

## 13. References

Corsini, R.J., Shaw, M.E., and Blake, R.R. *Roleplaying in Business and Industry*, The Free Press, Glencoe, Illinois, 1961.

Klein, A.F. *Role Playing in Leadership Training and Group Problem Solving*, The Association Press, New York, 1956.

Maier, N.R.F., Solem, A.R., and Maier, A. *Supervisory and Executive Development: A Manual for Role Playing*, John Wiley and Sons, New York, 1957.

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Boyd, H.E. "The 'Buzz' Technique in Training," *Personnel Journal*, June 1952, pp. 49-50.

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Jacobs, T.O. *A Program of Leadership Instruction for Junior Officers*, Technical Report 84, Human Resources Research Organization, Alexandria, Va., June 1963.

Klein, A.F. *Role Playing in Leadership Training and Group Problem Solving*, The Association Press, New York, 1956.

Lange, C.J., Rittenhouse, C.H., and Atkinson, R.C. *Films and Group Discussions as a Means of Training Leaders*, Technical Report 27, Human Resources Research Organization, Alexandria, Va., March 1956.

Loney, G.M. *Briefing and Conference Techniques*, McGraw-Hill Book Co., New York, 1959.

McGehee, W., and Thayer, P.W. *Training in Business and Industry*, John Wiley and Sons, New York, 1961.

Maier, N.R.F. *Problem Solving Discussions and Conferences*, McGraw-Hill Book Co., New York, 1963.

Maier, N.R.F., Solem, A.R., and Maier, A. *Supervisory and Executive Development: A Manual for Role Playing*, John Wiley and Sons, New York, 1957.

Nicholson, S. "Training Managers by the Case Method," *Management Record*, vol. 18, 1956, pp. 18-120 and 147-150.

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Wagner, R.H., and Arnold, C. *Handbook of Group Discussion*, Houghton Mifflin Co., Boston 1950.

*Part II*

# THEORY AND STATE OF THE ART OF METHODS FOR SMALL-GROUP INSTRUCTION

Chapter 1

# OBJECTIVES AND SCOPE

The purpose of Part II is to provide an analysis of both the rationale and the present "state of the art" of small-group instruction. Accomplishment of this purpose involved several more specific objectives: (a) to examine the theoretical foundations of small-group instruction, as found in group psychology and instructional theory, and to determine the validity of identified concepts for application to problems of instruction; (b) to describe the more common small-group methods and to evaluate each according to its advantages, disadvantages, and potential outcomes; (c) to review research concerned with small-group instruction in order to determine the effectiveness of the technique for teaching adults; (d) to draw implications for use of the methods in practical instruction.

## APPROACH

This report is based upon a survey of the literature and HumRRO experience in the use of small-group methods. Literature which was reviewed included all relevant publications cited in *Psychological Abstracts* during the period 1945-1968, applicable military and other governmental publications, and a large number of books and general publications in the field of psychology, education, and industrial training. The literature review followed the research objectives and included theories of group psychology and learning, methods of small-group instruction, and research on the instructional effectiveness of such methods.

Each of the chapters which follows is devoted to one of the above objectives. In Chapter 2, the background and rationale for small-group instruction is discussed; Chapter 3 deals with the methods of small-group instruction, while evidence concerning advantages, disadvantages, and potential benefits from such instruction is evaluated in Chapter 4. Finally, implications for use of small-group methods are discussed in Chapter 5.

As a prologue, several caveats are appropriate. First, the focus is upon *small-group* instruction. For the purposes of this report, the term "small group" refers to a collectivity of not more than 20 individuals. This emphasis is necessary because of the distinction between "small-group instruction," as defined here, and so-called "discussion techniques" which may involve any number of individuals

and are frequently used in civilian and military education under the rubrics of "class-centered instruction" and "conference" respectively. In this report, unless otherwise stated, the analysis will be limited to small groups.

Second, the concern of this report is with the effects of small-group methods upon individual learning. Much research has been devoted to comparing the products of joint problem-solving and learning efforts with those accomplished by individuals. Such studies have value for determining whether group products are better than those of individuals. However, since group problem solving and learning are not the concern of this report, the discussion will be limited to learning achieved by individuals within a small-group context.

Finally, the report will be limited to consideration of learning within groups of adults, to include college students. Although much of teacher training is devoted to the management of children's classes as groups, there is considerable evidence that adults respond to group influences differently than children. Accordingly, the material upon which this report is based did not include the extensive literature concerned with teaching children.

## CRITICAL CONSIDERATIONS

Any worthwhile instructional program may require different activities, at different times, for different purposes. Therefore, *the importance of a method lies not in itself but in how well it accomplishes the purposes of the instructor.* This consideration is especially important for small-group methods. As will be shown in Chapter 4, small-group methods differ in terms of outcomes, requisite instructors' skills, and students' reactions. For these reasons, it will be productive to view the discussions which follow against a background of several critical considerations concerning the selection and evaluation of instructional methods. Although not always specified, these considerations are fundamental to the effective management of education and training.

### Terminal Objectives

Probably the most important requisite for intelligent selection of a method is knowledge of the ultimate objectives of instruction (1, p. 14). Objectives should be explicitly understood in terms both of levels and kinds of learnings to be achieved by end of course and of kinds of behaviors to be exhibited after course completion.

### Enabling Objectives

A second consideration is the enabling objectives (1, p. 14)—those things the student must

learn if he is to achieve the terminal objectives. Of particular relevance for small-group methods is the question of whether the goal is to teach along *content* or *methodological* lines (2, pp. 482-483). In the one case (content), instruction focuses on acquaintances with certain stimuli and, in the other (methodological), it is concerned with methods by which stimuli of value can be received. If information is introduced relative to the various types of military intelligence, this is content. On the other hand, the instructor who attempts to teach students *how* to interpret intelligence information is operating from a methodological orientation.

This issue is, of course, closely related to the matter of terminal performance objectives, which will usually dictate the proportion of content to methodology to be included in the course. For most courses, complete separation is virtually impossible; however, the distinction between content and methodological training is useful for evaluating instructional techniques.

## Student Involvement

Another way of viewing instructional methods is in terms of the amount of student involvement which they evoke. Involvement is related to motivation to learn, and the extent to which students become involved in the teaching-learning process may be a critical determinant of success. Instructional methods can be placed along a scale of involvement ranging from those which evoke only relatively passive participation to certain high-involvement techniques where students find it exceedingly difficult to remain uncommitted.

Although, in practice, the generation of involvement is mainly a problem in the mechanics for reaching training objectives, it is also closely related to questions about the nature of the learning processes necessary for changing behavior.

## Cognitive Learning vs. Experience

Much of the controversy over instructional methods boils down to a question of cognition versus experience. The question is whether cognitive learning alone is sufficient to result in changed behavior or whether experiencing alone will enable a student to perform effectively after completion of instruction. Will knowledge of appropriate or recommended actions equip a student to function adequately in real situations, or will experience in practice situations alone enable him to be successful? Currently, most opinion leans toward some balance between cognition and experience, with relative weights depending upon instructional objectives.

### Student Ability and Experience

Some methods are productive only with more able students; others are especially designed for instructing inexperienced or less educated students. A related question involves the differences in ability among students within one learning group: Are all students of approximately the same level of ability, or is there wide variability among them?

### Student Background

Because of attitudes generated by their socio-economic and occupational cultures, people differ with respect to susceptibility to learning under varying conditions of formality. This is especially relevant for adults. Are students likely to be overly insecure if highly informal training methods are used, or will they feel stifled by excessive formality in the training situation?

### Differences in Student Status

Wide differences in status or authority among students in the same group can put strong inhibitions upon performance and learning. Differences in age, military rank, experience, level of expertise, and so forth may be especially inhibiting under the more informal methods of instruction.

### Number of Students

Some methods are adaptable for large numbers of students; others are not. This problem is closely related to the number of instructors available and to the student-instructor ratio desired.

### Instructor Qualifications

Degree of training, experience, and skill of instructors, both as teachers and as content experts, is an important factor in choice of method. Some of the most effective methods are usable only by highly skilled trainers; other only slightly less effective techniques may be used by instructors with a minimum of training.

### Time Available

The time that is available for instruction must be matched against the time required to reach a specific objective by a particular method. Some methods may require more time but produce better results than others.

Chapter 2

# FOUNDATIONS OF SMALL-GROUP INSTRUCTION

## BACKGROUND

The field of instructional methods is a morass of claims, counterclaims, and conceptual contradictions which impede attempts to build educational programs upon rational foundations. Small-group methods are no exception. The development of small-group instruction has been marked by both semantic confusion and a cultish fervor among its advocates which have frequently clouded the real issue of a scientific basis for its use. Nevertheless, it is possible to identify a more clearly articulated rationale for small-group instruction than for many other methods.

Scientists have long been aware of the effects which the presence of other people exerts upon the performance and thinking of an individual (3, 4); it has also been known for a long time that a person's learning may be facilitated if the individual is working in a group (5, 6, 7). However, systematic use of the small group as a medium for learning did not stem from the application of scientific knowledge, but from practical innovation in the field of adult education, where instructors found their more conventional techniques not altogether satisfactory for teaching mature students (8, p. 16).

Teachers of adults have found that many of their students exhibit strong resistance to instruction presented as dogma without opportunity for discussion and rebuttal. Furthermore, conventional techniques for motivating younger students do not seem to work as well with adults. In particular, grades, course credits, and degrees, the usual academic devices for rewarding and punishing, cannot be relied upon to motivate adults to the same extent as children. Compulsory attendance and reading assignments cannot always be enforced. On the other hand, educators have found that the greater knowledge and more mature outlook of most adults lead them to prefer an active role in learning. When the opportunity is provided for active, meaningful participation in the educational process, the motivation of most adults is very high, and many, in fact, become self-motivating.

Recognition of the value of active participation led many adult educators to resort to discussion as the primary vehicle for learning. Whereas, in conventional education, class discussion is used to

support formal instruction by the teacher, adult educators conceived of discussion as the principal means by which learning is stimulated. They found that well-conducted discussions of relevant problems and issues satisfy the adult's need for active learning and, what is more, are better for overcoming resistance to new ideas than are more dogmatic methods based upon persuasion by an instructor.

From emphasis upon discussion, it was only a short step to the use of small groups. Discussion in large classes is difficult to stimulate and awkward to control. Moreover, it is not very conducive to intensive learning. Accordingly, adult educators turned more and more to discussion within small groups as the primary vehicle for learning.

It remained, however, for the scientific rationale to be provided from the field of "group dynamics" as fostered by Kurt Lewin (9) and some of his students. Concerned about many pressing social problems, Lewin evinced a strong bias toward research that would produce usable findings, and much of his work reflected his interest in the application of scientific products to everyday affairs. His associates have extended the tradition until many workers in group dynamics are now deeply engaged in the practical application of group concepts within a variety of fields.

Much of applied group dynamics is concerned with effecting change of one kind or another (2, pp. 250-255). Since learning always involves change, education and training became early targets for the application of group dynamics concepts. From this point, it was only a short step to adult education, where small-group concepts were warmly received as scientific justification for practices which had already evolved through trial and error.

## RATIONALE

Small-group techniques take many forms and the literature concerning them is equally varied. However, throughout this literature, there can be traced a number of common threads concerned with certain factors that affect learning and with conditions necessary for learning to occur. The discussion which follows is an attempt to weave into a single coherent formulation those related threads which, although appearing in a variety of sources, together form a reasonably integrated rationale for the use of small-group methods.

### A Fundamental Concept

Fundamental to all small-group methods is the concept of *social interaction*. For practical purposes, "interaction" usually means discussion. Therefore, discussion is the process around which most, if not

all, small-group methods have been developed. Although some methods may also involve students in other activities (role playing, games, etc.), discussion at some point is almost inevitably a critical part of the instructional procedure.

For educational purposes, "discussion" takes on a more precise meaning than those usually encountered in general usage. The critical distinction between social conversation or "bull sessions" and discussion, as used here, is in the purposes behind them. In discussion, there is a calculated and systematic attempt to apply knowledge, thought, and fact-finding to solution of a problem or resolution of an issue so that learning may occur. Accordingly, the kind of discussion around which small-group methods are built can be defined as *group deliberation, carried on through oral discourse, aiming at the cooperative solution of a problem or resolution of an issue through reflective thinking* (10, p. 3). The various methods are merely different means by which conditions conducive to discussion can be created and by which they can be manipulated for learning purposes.

In the beginning, learning by discussion was rationalized on the assumption that the variety of viewpoints and opinions brought forth by students would result in cross-fertilization. However, after World War II, Lewin (9) and his associates (11, 12) provided new legitimacy based upon a more explicit rationale. When these scientists developed and tested the concepts of levels of behavior and resistance to change, with the accompanying method of unfreezing, changing levels, and refreezing through discussion and decision, they gave group discussion in education a more solid foundation. Where, previously, discussion had been viewed as leading only to cognitive reorientation through a kind of consensual validation, it was now seen as getting at something deeper.

## The Nature of Practical Learning

The current rationale begins with the premise that genuine learning involves a change in behavior (13). In short, if the student does not behave differently after the course than he did before, learning has not occurred. Following from such a pragmatic approach, the targets of education and training must be growth within the individual and change in his behavior. These are deeper and broader goals than the mere transmission of knowledge.

The acquisition of knowledge through solely cognitive processes is one important aspect of individual growth. However, knowledge that remains merely cognitive cannot

much influence an individual's ability to function effectively (14). What is needed is a translation of knowledge so that it becomes genuinely significant in the experience of the learner.

Knowledge is important to the learner only as it contributes to modification of skills, attitudes, or the internal dynamics of the personality (15, pp. 66-67). According to this view, effective learning is insightful, meaningful learning, and isolated information and principles (not tied to problems perceived by the learner as related to his life and needs) contribute little to the insight process. Such information and principles are not really "understood." If retained at all, they are "pigeonholed" or converted to abstractions which possess no real significance for performance.

Learning which can be used is not a matter of filling a void with information. It is a process of reorganization of complex thought patterns, perceptions, assumptions, attitudes, feelings, and skills, and of relating these reorganized concepts to the external world and the problems faced in it. Thus, the learning process is effective only when something dynamic takes place within the learner (16, p. 6).

Such learning must be active, participative, and involving. It is best accomplished through continuing experimentation, continual attempts to adjust concepts, and continued checking of one's ideas and interpretations against reality.

## Motivation to Learn

Most theories of instruction accept the premise that there must be a readiness for learning before it can occur. In practice, this means that the individual must perceive some need for change, must be capable of changing, and must perceive the learning situation as one which can facilitate such change in a direction acceptable to him. In short, learning cannot occur unless the individual is motivated and ready to learn.

Fundamental to the rationale for small-group instruction is the concept that the motivation to learn is a matter of attitudes and, what is more, that successful instruction requires not merely the stimulation of positive attitudes toward learning but, more important, the overcoming of attitudes that make the potential learner resistant to change (13, 14, 15, 17). Much of the methodology of small-group instruction is devoted to overcoming resistance to change.

Attitudes are generally organized and integrated around the person's image of himself, and they result in stabilized, characteristic ways of viewing the world, one's work, and other people (17). This stable way of viewing the world is comfortable for the individual and people sometimes go to great lengths to preserve stability even in the face of facts and information which appear to warrant a change in viewpoint. The suggestion of the need for change not only implies some

criticism of the person, but also threatens the stability of his relationships with the world.

Such threats are especially common in learning situations. The need for learning implies the existence of a deficiency. The suggestion of a deficiency, or the need for change, is likely to be perceived as a threat to the individual's sense of identity and to his status position in relation to other people (17). Therefore, information too threatening for him to accept because it attacks his self-image is blocked out or interpreted in such a way as to pose less of a threat. The result is that learning does not really occur.

Furthermore, to learn raises images of potential discomfort or even failure. Learning new things means leaving the tried, sure, and comfortable ways of thinking and behaving, unsatisfactory as they may be. It means setting out along unknown paths and the possibility of encountering unanticipated obstacles which may prove difficult or impossible to overcome. Accordingly, each person inevitably enters a potential change situation with at least some apprehension, either conscious or subconscious, and at most some severe anxiety.

Thus, both learning and the maintenance of change, once it has occurred, are assumed to have emotional as well as cognitive aspects (14). Stimulation of the motivation to change in thought and behavior, and to maintain these changes, is considered to be mainly a matter of overcoming both resistance within the student and forces in his environment that push against change. Much of small-group instructional methodology is devoted to creating conditions intended to minimize resistance and to stimulate motivation to learn.

## Conditions for Learning

Changes in behavior do not come easily, either for the student or for the instructor. On the other hand, instruction which is not genuinely intended to achieve change is a waste of time, effort, and money. Accordingly, the most critical problem facing every instructor is the creation of conditions under which change can occur.

Since learning is not solely an intellectual process, the rationale for small-group methods suggests that conditions under which instruction is to occur should take into account both cognitive and emotional aspects. If learning is to be achieved, resistance must be minimized, the student must be exposed to new ideas, and an active functioning frame of reference must be developed which will encompass both an awareness of the need to change and recognition of the real-life benefits to be derived from new ways of thinking and acting. Instructional methodology intended to accomplish

these purposes must meet several requirements (14, 18).

*A Climate for Learning.* Probably the most important requirement is a supportive climate that reduces resistance to learning (14). The process of changing one's patterns of thought and behavior is difficult and a climate that reduces individual defensiveness and anxiety about exposure of inadequacy is paramount in overcoming resistance to learning.

The purpose is not to protect the student from exposure of inadequacies but, rather, to create a supportive atmosphere which will encourage him or her to undertake the task of learning, to cope with anxieties and concerns, and to experiment with new ways of thinking and behaving. Development of a supportive atmosphere requires at least two essential conditions within the learning situation (14): First, threat must be minimized. The climate must be such that defensiveness is reduced and emotional support is provided while the learner is undergoing change in thinking and action. Second, the learning situation must provide reinforcement for new ways of behaving. As the student tries out different ideas and skills, "correct" responses must be reinforced positively and "incorrect" responses must be reinforced negatively so that they will disappear.

*Controlled Observation.* Much that is presented in the conventional instructional setting never reaches a useful level of explicitness or clarity. For this reason, skill in applying knowledge received in conventional courses is extremely difficult to develop and usually takes years of on-the-job experience. However, the process can be speeded dramatically if opportunity is provided for students to experience situations where a range of thinking and of approaches to problems can be made open to observation and analysis (18).

Passively watching a demonstration or listening to a discussion of a problem is not enough. What is needed are calculated and purposive observations made under controlled conditions so that the learner becomes actively involved in developing and practicing an analytic attitude. Therefore, a second requirement is for learning situations in which conditions can be so controlled as to maximize practice in observation and analysis.

*Varied and Realistic Situations.* As stated earlier, the rationale for small-group methods rests upon a conviction that the problem of instruction is not solely to transmit facts or viewpoints but to help the student to translate knowledge so that it becomes meaningful in his experience. According to this

view, learning occurs when the entire person is involved, that is, when the individual is affected by the knowledge acquired.

The extent to which a student becomes ego-involved in the learning process appears to be a major determinant of its effectiveness. Involvement is greatest when the learning situation can be structured so that students actively participate, rather than remaining passive. Although a student may be taught *about* self-insight and skills of living and working, these can become a part of his or her repertoire of behavior only through living through and learning from a stream of life events we call "experience." (19)

Although it is not always possible to create instructional situations identical to those encountered in the world of work, learners can become involved when problems or content are interesting, realistic, and relevant to the work in which the learning is to be applied. Accordingly, a third requirement for learning is opportunity for the student to actually experience functioning in situations which are as realistic and as relevant as possible (18).

The effective individual possesses the ability to identify the essential elements in a situation while stripping away and disregarding the many factors that are usually present but not relevant. However, in life, conditions are constantly changing and the effective person must be able to identify the unique characteristics of each situation encountered. Skill in coping with unique situations is best developed when students are exposed to numerous problems which are sufficiently different to require a variety of responses. Accordingly, this requirement includes the opportunity for students to experience not only realistic and relevant situations but a variety of them as well.

*Opportunity for Experimentation.* Observing the performance of others does not, by itself, lead toward individual growth, even when good conditions for controlled observation in realistic and relevant situations are provided. Such observations help develop an analytical attitude, but they make no demands upon the student to examine his own ideas, nor do they enable him to see himself in action.

Learning new ways of thinking and acting is difficult. Improved learning usually comes in a series of small steps in which the learner tries out a variety of ideas, discarding those that are inappropriate and reinforcing those that are successful. This can occur only when there is freedom to make mistakes. Accordingly, a fourth requirement is the opportunity to experiment with new concepts and new ways of behaving under conditions where mistakes will not have serious consequences for the learner (18).

*Objective Analysis of Own Performance.* Although the opportunity to experience new situations is critical for learning, experience alone never benefits anyone. The important factor is the use the individual makes of personal experience (19). Thus, while the opportunity to experiment is needed, it should be provided under conditions whereby the student can receive information about the effectiveness of new behaviors which have been tried.

Learning is best when students can consciously test their ideas in action, obtain knowledge of the results of the testing, and analyze this information in terms of consequences for future behavior in actual situations. Accordingly, a fifth requirement is opportunity for students to obtain feedback about the quality of their learned concepts and behaviors and to analyze their learning in terms of consequences for the future (18).

## The Group as a Setting for Learning

Considering the stressful aspects of learning and the requisite conditions outlined in the preceding section, it would seem that the most effective learning can be achieved in situations which provide emotional support to students while also enabling them to practice an analytic attitude, experiment with new concepts, and obtain feedback concerning others' reactions to their newly developed ideas. According to the rationale under consideration here, the above conditions can frequently be provided best within the context of a small group.

Much of education takes place in loosely structured group situations. For example, most formal instruction involves some sort of transaction between teacher, learner, and other students. Although learning is an individual affair, it most frequently occurs within a social context and much of the more complex learning can come about only through social interaction (20). Thus, group forces, either active or latent, are present in almost every educational situation, even though they may be untapped or uncontrolled. Small-group instructional methods are designed to systematically use these group forces to influence and increase the learning of individual students. The objective is to build and maintain groups geared to the purpose of learning and to use the forces inevitably present in such groups to create conditions that will be maximally conducive to learning.

## Group Forces Affecting Learning

The social-psychological forces that operate in groups are many and varied. Of these, however, a number have been identified as operant in most situations and as

particularly relevant to learning. In one form or another, these appear to provide the underlying bases for most small-group instructional methods.

*Group Goals.* A group goal is an objective that is held in common by all or most of the members. Since behavior is goal-directed, a group goal has the properties of concentrating the efforts of members and of mobilizing their efforts toward its achievement. Thus, under proper conditions, group goals have motivational properties that can exert considerable influence upon the behavior of members (21, p. 313).

Both research and experience have shown that a greater degree of learning occurs when students are psychologically involved and actively participate in activities in which learning is supposed to take place. Fullest involvement and participation occurs when students accept and become committed to goals of their instructional groups. A principal purpose of small-group methods is to develop instructional groups that possess the goals of increasing opportunities for individual learning.

*Group Cohesiveness,* The attractiveness of a group largely determines the degree of influence it can exert upon the individual member (22). If a group is attractive to all or most of its members, a feeling of "groupness" develops which is manifested in attitudes of loyalty and a willingness to be influenced. This group cohesiveness is a highly potent force which can, under proper conditions, be a major factor in learning.

One function served by cohesive groups is the establishment of a climate that supports readiness for learning. Such a climate includes the following (20):

(1) Expectations among members that everyone will learn.
(2) Acceptance that learning and change are desirable and not a mark of previous inadequacy.
(3) Recognition that individuals may make mistakes but, since all are learning, errors will not be punished by the group or other members.
(4) Realistic levels of aspiration for the group and for all members in terms of new learnings to be achieved.

Where such a climate exists, group influences can be strong in helping individuals develop a readiness to learn (overcome resistance) and then to change (23). For example, if the individual likes his group, it can exert pressure upon him to change as other members are changing. The fact that other members face the same difficulties is reassuring and, thus, there is less feeling of inadequacy. Moreover, such a group is able to offer potent rewards in the form of acceptance and recognition by

other members. These rewards are usually more effective as motivators than those which can be offered by an instructor.

*Group Norms.* All groups with any degree of cohesiveness develop norms affecting the behaviors of their members. Norms are standards of behavior—shared expectations of what members should do, perhaps even what they should think and how they should feel. In time, these norms become stabilized and become powerful determinants of the behavior of group members (24). Thus, the development of an effective instructional situation is, in large part, dependent upon the evolution of certain norms which will be facilitative to optimal learning.

Norms may be concerned with just about anything related to the life of a group. Two of the more important ones for small-group instruction are norms which permit every member to experience difficulty and norms of objectivity in the analysis and solution of learning problems. These norms are essential ingredients of a climate conducive to learning and, accordingly, are major targets of small-group instructional methods.

*The Communication System.* In a basic sense, learning is a function of communication. This is true of all learning that occurs in educational or training contexts, especially in group instructional situations. The communications that occur within the group determine the amount and types of learning that will be achieved.

Communication within an instructional group may occur at various levels of depth (25). Much of the communication may be at the cognitive level, being primarily an exchange of ideas concerned with the topic under examination. However, many communications also carry noncognitive meanings. Thus, people communicate emotions, attitudes, and feelings, all of which may enter into and influence, either positively or negatively, the learning process.

If an instructional group matures and develops a capacity to work as a learning team, members communicate with one another easily and well. When members do not feel the need to defend themselves, and feel secure enough to expose their ideas to the group, the communication level becomes deep enough for genuine learning to occur. Small-group instructional methods are intended to provide conditions which will encourage communication that will be conducive to learning.

## Functions Served by the Group

The rationale for small-group methods of instruction incorporates concepts of several kinds, including concepts about the nature of learning, factors that influence it, and ways in which it can be induced. However, under-

lying all of these is the fundamental premise that much of practical learning involves a social transaction, that is, it requires an interpersonal exchange between people.

On the face of it, this premise is not much different from those underlying conventional instruction. Both conventional techniques and small-group methods operate from the assumption that much of learning occurs as the result of interaction between people. The principal difference seems to be in the locus of the interaction and in the way learning results from it.

It would be foolish to claim that conventional instruction operates from any single set of integrated concepts which could be sharply contrasted with small-group methods. Too much of educational philosophy and practices is presently in a state of transition. Furthermore, many of the current debates are squarely grounded in conflicting notions about learning. Yet, through much of conventional education and training runs the concept of a fixed body of knowledge or doctrine and of naive learners who have not acquired the information or skills necessary to apply this knowledge in practical ways. According to this view, learning refers to the process by which learners acquire the information and skills from someone (an instructor) who is already in possession of them.

Small-group methods start with a different overall view of learning as a transaction between a learner and other learners, all of whom constitute a group. Under this concept, neither the learners nor the body of knowledge are fixed and both undergo modification during the transaction. In other terms, this means that much of learning to use knowledge in a practical way occurs through interaction between learners, during which concepts, practices, and additional knowledge from past experience can be exchanged, molded, integrated with information from instructors, and formed into a workable frame of reference which can later be applied to problems in the real world. Thus, in small-group instruction, the principal interaction is within the learning group and learning results from the exchange that occurs within the group.

Many of the concepts derived from learning theory apply equally in small-group instruction. Perhaps the most useful are the concepts of "reinforcement" and "feedback." With regard to reinforcement, one learns in groups as elsewhere—by responding to a stimulus. However, in the learning group, the stimulus is the behavior of other people. "Correct" responses are reinforced positively and tend to become established in the learner's repertoire of responses. "Incorrect" responses are negatively reinforced and tend

to disappear. In the learning group, other members are the agents of positive and negative reinforcement.

A major difference appears, however, in the determination of which responses are "correct." In conventional instruction, the correctness of the response to be learned tends to be predetermined by instructor, doctrine, or a machine programer. This definition of correctness is held constant during the entire learning experience. On the other hand, in small-group instruction, group members function both as learners and as environment, and standards of appropriateness of stimulus and response are worked out through the "give-and-take" of an evolving discussion.

Closely related is the concept of "feedback." This concept is concerned with the powerful learning effects of prompt feedback to the learner about the effects of his exploratory responses. In all forms of learning, knowledge of the results of trial responses is deemed essential. This is no less true in small-group instruction. A principal aim is to provide conditions under which a learner may receive prompt feedback concerning the new ideas and skills which are being tested. In small-group instruction, this feedback is supplied either by other group members or by discussion leaders, depending upon conditions and the method used.

In small-group instruction, the group provides a stimulus environment, within which learning is both stimulated and tested. As a stimulus environment, the group serves three functions which differentiate small-group instruction from individual-centered education or training (26, pp. 52-54). The functions involve (a) resources, (b) social motivation, and (c) social influence.

*Resources.* One of the principal functions of the group is to serve as a resource to learners. The typical group will have a wider range of information and a greater critical facility than any individual member. Furthermore, the greater potential resources make the group more likely to discover a wider range of alternatives than a single member. The pooling of individual judgments also tends to eliminate erroneous or inappropriate concepts and conclusions. Because group discussion is selective, the final product will probably have eliminated many of the poorer alternatives generated by members. Thus, selectivity often improves the quality of learning.

It cannot be assumed that more information, greater critical facility, and opportunity to pool judgments will inevitably improve the quality of learning in groups. The existence of a group merely makes these resources available. However, unless they are used effectively, they may contribute little and, under some conditions, can actually impede learning because

of the confusion which may be created among members.

*Social Motivation.* Because motivation is a critical determinant of learning and because factors that influence motivation are, in education and training, predominantly social, the motivational consequences of group interaction are difficult to overemphasize. The mere presence of other people in a learning situation creates new motivational implications because many of the goals and rewards valued by most individuals are available only from interaction with other people. These effects are further strengthened when an actual group is developed. Under these conditions, the forces that operate in all groups channel and focus individual motivation in directions determined by the collective goals.

Just as with the provision of resources, the existence of a group situation does not necessarily insure that motivational forces will be directed toward learning. A group can be a powerful source of social motivation; however, the nature and direction of that motivation will be determined by the goals of the group and the conditions that exist within it.

*Social Influence.* The social influence function of learning groups is concerned with the development and enforcement of norms governing the attitudes and behavior of group members. In small-group instruction, group influence is exerted through standards related to type and amount of participation, collaboration between members, depth of discussion, feedback to be provided members, levels of communication, support given discussion leaders, and similar factors. Although many factors may affect the ability of a group to influence its members, its potential for influencing a particular individual is determined, in large part, by the extent of attraction to the group and of desire to remain in the group and to be accepted by other members.

Again, the existence of a group is no assurance that its norms will be conducive to learning. Depending upon conditions, norms may develop around any issue that has relevance for a group and may exert influence in any direction. An important problem for instructors is to create conditions that will ensure the development of norms that are conducive to learning.

## OVERVIEW

The concepts discussed in the preceding sections of this chapter form the foundation for small-group instructional methods. Central to the approach is the use of the social-psychological forces in small groups to enhance and maximize the conditions under which learning occurs.

In the final analysis, the responsibility for learning must rest with the individual student. Learning can occur only within the individual and he must be the final determinant of whether change will, in fact, take place. Thus, the old axiom which states that "if the learner hasn't learned, the teacher hasn't taught" can never be altogether true. But the fundamental responsibility of every instructor is to create around the student those conditions that will be most conducive to learning. This is, in effect, the role of the teacher.

Small-group methods of instruction are one approach to the creation of conditions conducive to learning. Regardless of the particular method used, the rationale for small-group instruction rests upon the premise that learning is partly a function of attitudes, and education or training is a matter of overcoming resistance to change. This can be accomplished by discussing issues or problems and, in many instances, arriving at decisions about how they might be handled. Because the group resolves the problem itself with each student participating, members are committed to the solution through the functioning of group norms endorsing the new ideas or behaviors. Under this rationale, two purposes are assumed to be accomplished: (a) students get new insights into problems by hearing many different viewpoints and by having their own ideas critiqued, and (b) they learn new ways of behaving to which they are committed because of group discussion and decision.

For maximum change to occur, a group must possess a common goal for learning, a reasonable degree of cohesiveness, norms conducive to learning, and patterns of effective communication—in short, a learning culture. In permanently structured groups, these ingredients may already be present. However, in most instructional situations, where students usually meet for short periods spread over weeks or months, instructors must create and develop the requisite structure and processes of the group. The various methods used in small-group instruction are merely devices for accomplishing these purposes.

Chapter 3

# METHODS OF SMALL-GROUP INSTRUCTION

In Chapter 2, the discussion centered around the common threads that underlie the various small-group techniques of instruction. The present chapter presents a description of the principal methods and an analysis of the types of learnings each appears to accomplish.

It was emphasized in Chapter 2 that, whether explicit or not, all of the techniques which fall under the rubric *small-group methods* rest upon a particular concept of learning and of the conditions necessary for learning to occur. It was also suggested that the various methods are merely different devices for using group processes to enhance learning. However, emphasis upon similarities should not be carried too far. Although all methods appear to rest upon a common foundation, some genuine differences do exist and it is important to be aware of those differences. Small-group methods differ in terms of goals, prerequisite trainers' skills, and expected student reactions. Accordingly, they should be viewed as instruments appropriate for specific purposes and under specific conditions.

In the discussion to follow, examination of each method will focus upon such aspects as the operations involved, learnings the method appears to accomplish, and ways it may be used. In considering these aspects, each of the methods is treated as relatively "pure," that is, as a distinctly different approach. The distinctions are not always so clear-cut in practice where methods are often combined, modified, or used in conjunction with other techniques. Such modifications are entirely permissible as long as the instructor is aware that effects may be changed accordingly. Nevertheless, for the purposes of this report, each method will be treated as a distinctive approach to education or training.

## CONFERENCE METHOD

The conference technique is by far the most popular small-group method currently used in industrial training. Reasons for its popularity are not difficult to find. For one thing, the metnod does not require a subject-matter expert. Accordingly, it is possible to train an unsophisticated person in a reasonably short time so that he can do a creditable job as a conference leader. Another reason is

that the method closely follows the rationale for small-group methods and, therefore, has achieved a measure of respectability which has made it the method of choice in many organizations.

The conference method involves a series of carefully planned meetings with specific goals, in which leader and students discuss topics or problems relevant to the overall purpose of the instructional program. The method rests squarely upon group discussion but, in contrast with the Leaderless Discussion, is dependent upon the trainer's manipulation of the discussion process so that it is always directed toward specific program goals.

Usually the conference leader does not present theory, principles, doctrine, or ways of handling problems. Rather, the group is presented with a topic or problem and members speculate about possible ways of handling it. Solutions may be suggested by members and evaluated by the group through a free exchange of experiences and opinions. The group may evolve ideas which become the accepted solutions or the leader may guide the discussion along some particular course toward a predetermined solution of his own. Thus, in its purest form, the conference method is a highly practical approach to education or training. Students are not exposed to theory, principles, doctrine, or expertise. Rather, discussions and solutions are derived from their own experiences or ideas and are applied to real-life problems.

In this connection, it is important to distinguish between the "free" conference and the "directed" conference. The free conference involves a completely unguided discussion and is usually problem-centered. The agenda is developed by taking a problem-census in which participants suggest potential topics. Solutions are those freely evolved through discussion.

The directed conference is more frequently used for training purposes. Here, the conference leader uses a predetermined agenda and each topic on it is discussed. The discussion may be relatively free; more frequently, it is guided by the leader who makes sure certain points are covered. In some cases, the discussion is "directed" to the extent that the leader actually manipulates it to reach a predetermined conclusion.

The conference method has much to recommend it, especially with reference to training management. For example, relatively inexperienced personnel can be trained to lead conferences. Subject-matter experts are not necessary, although such specialists are certainly able to improve the quality of a program. Conference leaders' guides can be prepared by experts to provide complete instructions with regard to steering a discussion. If needed, a step-by-step outline can be developed to include all points

to be covered, the actual words to use in opening and closing each session, conclusions to be reached, and similar materials. The method thus permits conduct of training with whatever personnel may be at hand. Furthermore, a skillful leader can control the discussion, thus making sure that "school solutions" are developed by the group.

On the other hand, if the leader is not a content expert, there is much greater risk of superficiality in the discussions. Because of lack of expertise among students, discussions tend to skirt issues unless the conference leader can skillfully probe relevant points and raise questions which will give students insight into underlying problems. In order to accomplish this well, the leader must be sufficiently knowledgeable in content areas to identify both superficial diagnoses and critical issues so that the group can be guided into more meaningful discussions.

Learning from the conference method appears to be mainly cognitive, with heavy emphasis upon insight into practical problems gained through the exchange of viewpoints. Although, as its adherents claim, the method possesses potential for changing attitudes, genuine change seems to depend more upon the competence and skill of individual conference leaders rather than upon the method itself. Because the method rests almost solely upon discussion, no opportunity is provided for skill practice. Thus, students get no experience with real behavior under either experimental or practice conditions. Some trainers attempt to overcome this limitation through the auxiliary use of role playing.

## LEADERLESS DISCUSSION

The term "leaderless discussion" refers to a group discussion for which a formal leader has not been designated and in which an instructor does not participate. Instead, the influence of the instructor is limited to assignment of a topic, problem, or issue to be discussed. In this way, the content and course of the discussion are determined almost completely by the students. This technique, when used for training, is to be distinguished from the Leaderless Group Discussion described by Bass (27), which is used mainly for the assessment of leadership potential.

Most commonly, leaderless discussion is used in conjunction with large-group sessions to introduce issues, to generate involvement among participants, and to provide opportunity for the exchange of ideas. When used in this way, the leaderless discussion groups are, in effect, sub-groups of the larger classes. The usual procedure is for the instructor of a large class to divide it into small groups which are then required to discuss some topic, problem, or issue for a specified period of time. The discussion may occur either before a

formal presentation (to introduce issues or generate involvement) or following it (to exchange ideas). In either case, the purpose is to generate more effective learning by overcoming the formalities inherent in large classes through subgrouping and spontaneous discussion.

### Topic Discussions

One type of leaderless discussion is the "topic discussion." In this form, the instructor assigns a specific topic or issue for discussion and allows a fairly lengthy period of time, such as 30 minutes or an hour, for completion. Advance readings may be assigned to prepare students for the discussion. The instructor may also provide students with a list of issues for discussion, guidance as to questions to be answered, and so forth. In all instances, however, responsibility for the nature and quality of the discussion rests with the students.

The topic discussion is useful for identifying issues or for introducing a problem to students. When students discuss a problem prior to a formal presentation such as a lecture or film, attention becomes focused upon critical issues and involvement with formally presented material is greater. Another use for topic discussions is to develop solutions to problems. Here, a limitation is that clear-cut solutions are sometimes difficult to obtain because of lack of the direction which could be provided by a discussion leader.

Learning achieved through topic discussions appears to be mainly in the form of increased sensitivity to issues and problems and, in better groups, perhaps a fairly superficial insight into solutions to specific problems.

### Buzz Sessions

A "buzz session" is a brief but intensive discussion held among a small number of participants without advance preparation and with a minimum of formality. In this procedure, a question or issue is posed to a class. Members are then asked to turn to one or several neighbors (or to form convenient groups) and to engage in discussion for several minutes.

Buzz sessions appear to be most useful for introducing issues and problems, and thus, laying groundwork for learning to be achieved from later formal presentations or guided class discussions. Some evidence exists that buzz sessions result in both improved problem solving and participation in class discussions (28). They do not appear to exert much effect upon attitudes.

## CASE METHOD

In general, the case method involves the exposure of students

to accounts of concrete situations with some temporal and developmental span in which a variety of factors are at work. The cases are descriptions—printed, tape-recorded, or filmed—of actual situations from real life and students discuss them with the objectives of discovering underlying principles, if any, and applying the principles to diagnosis and solution of the problems. Although case discussions may be held with large classes, much of the effectiveness of discussion is lost as size of class increases and the greatest learning seems to be achieved when discussion groups are small. For this reason, the case method is included in this analysis of small-group instructional methods.

Several approaches to the study of cases have been developed. In fact, some practitioners consider role playing and even sensitivity training to be derivations of the case method (29). However, for this report, the distinction will be retained. Here, discussion of the case method will be limited to the Harvard case study, the Incident-Process method, and abbreviated cases.

## Harvard Method

The case method of teaching originated in law schools where students learn by analysis of actual court cases. Later, the method was adopted by the Harvard Business School where much of the curriculum is now based upon a case approach. It is the Harvard orientation which governs most uses of the case method today. The approach rests upon a carefully disciplined rationale encompassing case preparation, discussion leading, and method of analysis (30).

Typically, a case is a printed record of a problem or issue which actually has been faced by someone, together with surrounding facts, opinions, and prejudices upon which decisions had to be made. The cases are presented to students for considered analysis, open discussion, and final decision as to the action which should be taken. Most frequently, cases are assigned in advance of the discussion so that students will have opportunity for careful analysis. The case is then discussed in class with the instructor serving as moderator. Students may also be required to submit written analyses.

In the Harvard method, a course is usually limited to case analysis and discussion. Occasionally, supplemental readings may be assigned. In the strictest practice of the Harvard method, no theory or principles are presented. However, some trainers have used lectures to provide a frame of reference for thinking about the problems posed by the cases.

Under the case method, the instructor's role is to assign the cases for discussion, to act as a responsible member of the group delegated to provoke argumen-

tative thinking, and to guide discussion toward points of major importance by making contributions and asking questions. The instructor may, if he chooses, take a final position on the viewpoints which have been threshed out.

According to the Harvard method, it is a requirement that the instructor adopt a nondirective role, withholding personal opinions and attempting at all times to establish a permissive atmosphere within the group. The sole concern is with the quality of student thinking and with stimulating deeper and more mature problem analysis. A basic premise is that the individual will learn and better remember those things which he discovers for himself. Accordingly, the function of the instructor is not to give answers but to help the student to develop analytical ability.

Practitioners of the method contend that preparation of case material is extremely important. In order for proper analysis and discussion to occur, the case must contain appropriate background, facts, conflict, and sequence of events. One characteristic of case writing is strict adherence to a consistent point of view. The writer supplies only events and facts; feelings and thoughts of the characters are not reported. Furthermore, the writer looks not only at the active instrumental elements of the situation, such as procedures and techniques, but at the processes by which the action takes place—process in terms of interactions among people and the behaved or verbalized expressions of these people.

At this point, it is important to distinguish between a *teaching case* and a *case history*. A teaching case is a carefully designed description of a problem situation, written specifically for the purpose of provoking systematic analysis and discussion. As such, it does not necessarily represent a complete description of all facts and events. A skillful writer composes the case with the objective of creating a challenging problem. Furthermore—and most important—the outcome is never revealed; the case is brought to a point requiring decision and action, then it stops. In contrast, a case history usually involves the historical enumeration of all relevant aspects of a person, situation, or event, including the outcome. It is intended to illustrate some type of behavior, a phenomenon, how a problem was resolved, or other aspects. The fundamental distinction is that a teaching case is intended to pose a problem, while a case history illustrates something. Proponents of the case method would contend that a case history is a poor vehicle for training in problem analysis.

Thus, composition of the case is highly important and requires a certain degree of skill. If cases are not structured so as to challenge mature analysis and stimulate discussion, failure is likely (31). In

this regard, it should be noted that cases can be written to highlight the problems indicated by the particular objectives of the course. For example, a case for a class dealing with leadership might emphasize the interpersonal aspects of a situation while a case intended for a class in technical administration could highlight the formal procedural aspects of the same situation. In addition, cases may encompass any type of problem—human, administrative, or technical.

The Harvard method rests upon a two-pronged rationale concerned with (a) the knowledges and skills necessary to function effectively in real life, and (b) the best ways of teaching students requisite skills with which to do so. Under this approach, it is believed that, as far as responsible activity in the real world is concerned, a fund of ready-made answers can be of little avail (16). Each situation is a new situation, requiring imaginative understanding as a prelude to sound judgment and action. Usually an individual will not have all the facts and viewpoints, and thus there is no one best answer. Accordingly, what is most needed is the ability to take all available information, sift out relevant facts, see the relationships between them, and make sound judgments and decisions relative to them.

Corollary with this view is a position on the best way to equip students to solve real-life problems. This position attacks the assumption of traditional academic teaching that it is possible by a simple process of telling (lecture) to pass on knowledge in a useful form. No amount of information, whether of theory or of fact, in itself improves insight and judgment or increases ability to act wisely under conditions of responsibility (16). Advocates of the case method contend that students must be initiated into the ways of independent thought and responsible judgment by being confronted with "real" situations which must be analyzed and by submitting their analyses to the criticism of contemporaries. The case method attempts to put the burden of independent thinking upon students by forcing them to use their own knowledge and insight. This is accomplished by inculcating a fact-finding approach to problems which is expected to become a characteristic way of thinking.

Thus, the Harvard case method rests upon a carefully developed rationale. Since the logic of the approach is reasonable, it has attracted many advocates. However, for this report, an important question remains. What precisely can the case method be expected to accomplish?

The method appears to train students in the skills of conceptual diagnosis. Over a long period of exposure to case analysis, a student develops a fact-finding approach to problems. According to Benne (29), well-conducted case discussions may, over time,

broaden the student's repertoire of diagnostic schemes and he may develop some of the attitudes necessary for dependable and accurate diagnosis—suspension of judgment, acceptance of variety in people and situations, and recognition of the complexities of organizational, group, and individual behavior. In short, the main accomplishment of the Harvard method appears to be the development of a problem-solving orientation, together with a heightened awareness of the factors to be taken into account in approaching problems. Furthermore, by experiencing the testing of his ideas against the opinions of others, a student may learn a greater tolerance for the ambiguities of real-life situations.

From the standpoint of training management, the Harvard method possesses certain advantages. For one thing, instructors do not have to be experts at writing cases. The cases can be prepared by one or more specialists but can be used by many different instructors. Instructors may even be furnished with prepared analyses of the cases, thus ensuring better instructor understanding of the cases and the issues that will probably be raised. Furthermore, because they are printed, the same cases may be studied by many different groups simultaneously, insuring greater uniformity in exposure of students to teaching materials.

Certain limitations are also inherent in the Harvard method. For example, it cannot readily reproduce the unfolding quality of actual events. Realism in the cases is thus reduced. A more critical problem concerns the fact that the material under scrutiny is the behavior of someone else. Accordingly, the student engages in a rather safe, impersonal analysis of a situation in which he is not an actual participant. Diagnosis thus becomes merely an intellectual exercise. The case method does not provide for bringing the behavior of the student to the point of testing it in action and of subsequently analyzing the behavioral consequences both for himself and others. Finally, as with the conference method, the Harvard method makes no provision for learning and practicing action skills.

### Incident-Process Method

According to Pigors (32, 33), the Harvard case method has serious limitations. For one thing, the typical Harvard case presents most of the available facts in the situation. Pigors contends that, when given all information, the student has no opportunity for developing skill in evaluating problems, in determining what facts are needed, and in digging them out. It is his belief that the Harvard method trains only in problem analysis and not in fact finding.

Pigors also maintains that, since students using the Harvard method

never know the real outcome of a case, they miss the benefit of comparing and analyzing the differences between their decisions and those made by experienced leaders. Furthermore, he contends that the nondirective leadership of discussions required in the Harvard method prevents students from getting closure on the problems and that this inhibits learning.

Accordingly, Pigors has developed a modification which he calls the Incident-Process method of case study. In this method, a brief incident requiring adjudication and decision is presented to students. Then, the group must decide what additional information is required. The discussion leader, usually but not necessarily an instructor, is provided with background and factual material which he furnishes only as the members of the group request specific items of information. If the information is not requested, the discussion leader never provides it. Thus, students may finally be required to decide a case on the basis of only partial information because they failed to ferret out everything needed to make a valid decision. After obtaining the desired information, each trainee writes his decision and the supporting reasons for it. The decisions are presented publicly and debated with pressure by the leader toward arriving at a common conclusion. The students then hear the real decision and analyze the adequacy or inadequacy of their fact finding and decision making in contrast with it. Thus, over time and numerous cases, students learn to analyze brief incidents in terms of relevant facts and also to become skillful in obtaining these facts. Pigors believes this process develops the fact-finding ability required to function effectively in the real world.

In this way, Pigors hopes to overcome the limitations he sees in the Harvard method. However, in the Incident-Process method, learning again appears to be restricted to development of diagnostic skills. Although students seem to interact more realistically in trying to reach group decisions, there is no opportunity for studying and trying the actual skills of implementation in situations similar to those studied.

### Abbreviated Case

When the Harvard method is strictly followed, lengthy advance preparation by students is inevitable. The requirement for full access to all facts and information in the case usually results in a fairly comprehensive printed document. Accordingly, mastery of the case requires students to engage in extensive preparation for in-class discussions. In some instances, such preparation may be desirable and, certainly, intensive analysis of a complex case should be conducive to learning. However, there

may be situations when caliber of students or other demands upon student time may preclude extensive preparation. One means for providing students with full access to necessary information and still avoiding the long preparation required by the Harvard method's extensive documentation is the abbreviated case (34).

The most important advantage of the abbreviated case is its brevity. Reading seldom requires more than 15 minutes. If desired, cases can be assigned at the beginning of each class period, thus assuring that all participants are adequately prepared. Furthermore, since the abbreviated case presents only major points in the reported situation, it becomes easier to keep discussions focused on central issues. This also simplifies the task of discussion leaders.

The principal disadvantage of the abbreviated case is that unimportant facts are eliminated and the minimum of information which appears is presented in such a straightforward manner that students have no opportunity to practice sifting out essential elements from those that are not important. Thus, analysis may become too simple as compared with real situations where an individual may have to weigh and discard a number of secondary factors before arriving at solution of the central problem.

One modification of the abbreviated case which should be mentioned is the dramatized case. In this form, a short case is presented through the medium of either tape recordings (35) or film (36). The cases are usually open-ended, that is, they reach a critical point of conflict and end without resolution of the problem. The group then discusses possible issues and solutions.

The principal advantage of the dramatized case is that it communicates important facts without preliminary reading and with heightened dramatic effect. On the other hand, their effectiveness is usually confined to the presentation of dialogue situations. Thus, the oral form of presentation mainly restricts cases to human relations problems. Cases dealing with non-human aspects such as planning, organization, and technical problems are difficult to portray.

## ROLE PLAYING

There is one limitation to the case method which has special significance for leadership or human relations training. Although cases often describe relationships between people, they are not capable of portraying the more dynamic aspects of human interaction or of generating very intensive involvement with the problem situation. Because cases are inadequate to communicate the numerous and varied behavioral cues available to a person who is

actually involved in the face-to-face situation, some of the flavor is lost. In an effort to overcome this limitation, many instructors have turned to role playing.

## Use in Instruction

Role playing is a method of portraying human interaction in imaginary situations in such a manner that realistic behavior is elicited (37, p. 8). This rather general description implies that role playing can be used for many purposes, and, indeed, such is the case. Developed originally as a psychotherapeutic technique, role playing has also been used successfully for problem illustration, problem diagnosis, and training evaluation. Its greatest popularity, however, has been achieved as a method of training, especially in leadership and human relations.

For instructional purposes, a situation is presented to the group and some members are asked to assume roles and to enact the situation toward some resolution. Other students observe the behavior of the actors. The scene may be carried to a resolution or the instructor may stop it at some critical point in the action. Following the scene, observations, as well as thoughts and feelings of the actors, are reported and discussed by the group. In this way, faulty diagnoses, alternative actions, and discrepancies between diagnoses and action can be identified. Alternative ways of handling the situation may be tried by replaying the scene.

Role playing thus provides students with opportunities to observe, experience, and practice actual behavior in contexts somewhat similar to reality. Of particular importance in leadership training is the fact that the full significance of learning is only in a minor way related to elegance of the problem solution, if any. Rather, focus is upon relationships and impacts of the actors upon the situation. Therefore, analysis is concerned with actual behavior rather than concepts.

Emphasis upon experienced behavior is the characteristic that mainly distinguishes role playing from the methods discussed earlier. Because most leadership problems occur when two or more people interact, the basic approach is to create realistic interpersonal situations, use various methods of collecting information about behavior and attitudes in the situations, analyze the information, and endeavor to draw generalizations from the analysis. Generalizations and hypotheses, in turn, are tested in action as students try out new skills. Thus learning is more than verbal. Because the learning grows out of experience, because it deals with the observed behavior of individuals and groups in a public way, role playing is quite different from instructional situations in which behavior is talked about but never examined and in which

students never actually experience the problems which are discussed.

## Rationale

The rationale for role playing starts from the conviction that the problem of training is not solely to transmit facts or viewpoints but to help the student translate knowledge so that it becomes meaningful in his own experience. Therefore, role playing has the fundamental objective of making a student consciously aware of the implications of his actions and of the actions of other people for him, and of helping him to become skillful in diagnosing and acting in ongoing situations. One requirement for the development of this awareness is opportunity for the student to actually experience himself functioning in realistic situations. Role playing provides this opportunity.

The opportunity to experience realistic situations is an essential requirement. However, experience alone never teaches anything. The important factor is whether the student learns from the experience. Such learning can be increased when the opportunity is also provided for consciously testing behavior in action, for getting feedback about its effectiveness, and for analyzing its effects and its consequences. Where provisions are made in the program for students to obtain feedback through group discussion, role playing also fulfills this requirement.

It has already been stated that advocates of role playing consider that the ability to skillfully diagnose ongoing events and their causes is important (37). They contend that this ability can be developed only through observing systematically—merely watching an occurrence is not sufficient. What appears to be required are calculated, purposive observations made under controlled conditions so that the learner is actively and consciously involved in practicing a diagnostic attitude. Role playing provides this opportunity when non-acting members of the group are assigned specific observer functions with instructions to watch for significant events that might occur.

Finally, the rationale for role playing is based on the contention that behavioral skills do not come easily. This implies the need for freedom to make mistakes during the learning process. Accordingly, another requirement is the opportunity to experiment and practice under conditions where mistakes do not have serious consequences. Role playing also provides this opportunity.

A key concept in role playing is "spontaneity," an adequate response to a new situation or a new and adequate response to an old situation (38). Thus, spontaneity is the ability to respond to a

variety of changing situations without being constricted by rigid patterns of behavior. With reference to education or training, this suggests that the objective is not to teach the individual some predetermined set of behaviors. Rather, the goal is to develop flexibility so that the student is equipped to cope with new and changing situations *as they occur*.

Degrees of effectiveness and the specific outcomes of role playing vary according to the objectives of the instructor. Three main classes of objectives have been identified. The first involves training students in specific methods and techniques. For example, role playing is extensively used for teaching techniques of conference leading, interviewing, selling, and instructing. In such training, emphasis is mainly upon illustration, drill, practice, and critique. Learning centers around methods and procedures; however, spontaneity remains the keynote.

A second class of objectives is concerned with developing diagnostic and action skills. Although specific problems may be used as the vehicle, the goal is to develop diagnostic sensitivity and action flexibility across a wide spectrum of conditions.

The third class of objectives is concerned with the development of personal insight or self-understanding. Through participation in action situations, the student is able to observe the effects of his behavior on others and of their actions on him. By testing the consequences of his behavior, the student obtains data for evaluating either characteristic or newly acquired ways of handling problems.

## Role of Instructor

Thus, it can be seen that role playing is an exceptionally flexible method which can be used for a variety of purposes under many different conditions. Numerous modifications can be derived from the basic method, making it possible to explore most kinds of problems and situations. For this reason, the instructor is a critical element in role playing. The way the instructor adapts method to objective, how the role playing scenes are structured, the way role playing is introduced to students, the things student-observers are instructed to look for, and the skill with which the instructor leads discussions, all go to determine the effectiveness of the instruction. The latitude afforded by role playing makes the instructor highly important.

While the instructor is a critical determinant of the effectiveness of role playing, the method does not necessarily require extensive training in its use. Rather, more important requisites are competence as a teacher and precise understanding of the rationale and purposes of the technique as an instructional method. A tolerance for ambiguity

and some insight into human behavior is also helpful, but the major requirement is that the instructor know what he is trying to do.

The rationale, purposes, and procedures of role playing can be communicated to novice instructors. Ideally, first-hand experience with role playing and some practice in its use should be a requirement. It is possible, however, to communicate the necessary information through the printed word. Klein, for example, has published an excellent book which describes how spontaneous role playing can be used (39). Maier, Solem, and Maier (40) have written a manual for role playing using industrial problems. The manual presents a rationale, detailed instructions, case materials, and even instructors' guides which point out the important issues in each case and the directions the discussions are likely to take. The trainer is thus furnished with a ready-made course in supervisory relations. Similar manuals could be easily devised for any course, or instructors could be furnished with rationale and instructions together with materials covering a variety of problems and situations to be used as needed.

Emphasis upon spontaneity and the nature of the instructor's role make external control of instruction difficult. While it is easy to obtain uniform presentation of problems across classes, it is virtually impossible to ensure that discussions will be identical. From the viewpoint of spontaneity theory, such uniformity is undesirable for learning. However, regardless of the validity of this view, responsibility for quality and content must rest more with the individual instructor than with training managers.

The fact that role playing is usually limited to portraying close interpersonal behavior is something of a handicap for courses in higher-level leadership where organizational dynamics may be an important topic for study. Some instructors have overcome this problem by designing large role-playing situations so as to enact an entire organization in the process of solving some important problem. Under these conditions, students fill all of the key roles in the organization and remain in role for longer periods, as much as a day or more at a time. Through the use of observers, students receive data relative to their own behavior as well as to the problems occurring between organizational components. Thus, there is an opportunity provided for learning about individual, group, and organizational relationships simultaneously.

Another potential limitation is the traditional emphasis in role playing upon behavior. Unless modified, role playing is weak in teaching about other elements such as decision making. Maier, Solem, and Maier (40) have compensated for this limitation by

combining case study with role playing so that the most desirable elements of both are available. The student thus has opportunity for learning in both the interpersonal and decision-making aspects of leadership.

## COMMITTEE PROBLEM SOLVING

In committee problem solving, real or hypothetical problems are assigned to small groups of students who work together toward a final group product (41). Whereas the case method emphasizes analysis by individual students followed by discussion, committee problem solving stresses discussion and joint effort from the beginning.

The problems assigned may be such that they can be completed within one class session, in which case they are selected so as to parallel or illustrate on-going instruction. On the other hand, problems may require much research and work on them may extend over weeks or even a term or semester. In either event, all facts and information relevant to the problems must be available to the students or accessible through research.

Although solving a problem should certainly help students to learn more about its content, the major learning to come from this method seems to be in the area of problem-solving techniques. Students learn how to attack problems, gather data, weight alternatives, and derive solutions. Furthermore, in committee problem solving, students learn how to reconcile differing viewpoints in order to arrive at a group decision.

Committee problem solving is especially useful for training groups of people who are required to work together on a daily basis. Thus, staffs, departments, or sections whose missions involve daily cooperative effort may benefit greatly from jointly attacking and solving assigned problems which are not part of the work of the unit.

## SUMMATION

The point of this discussion of methods is clear. Although based upon the same underlying rationale, small-group instructional methods differ in terms of objectives, requisite instructors' skills, and expected students' reactions. Accordingly, no one method can be considered a panacea for all needs. All should be included in the instructional armamentarium from which one or a combination of methods can be selected as appropriate under particular conditions.

Chapter 4

# RESEARCH WITH SMALL-GROUP METHODS

## INTRODUCTION

Despite their widespread use by educators and trainers, systematic research on the effectiveness of small-group methods has not been extensive. Attempts to study the question began as early as 1925 (5) and have continued intermittently since that time. However, no comprehensive programs intended to obtain definitive answers have been undertaken.

Studies of small-group discussion have been approached from many viewpoints, and they have included almost every conceivable variable and combination of variables. As Roseborough points out in her review of experimental studies of small groups (42), research concerned with group discussion has included groups with all types of members, with many different objectives and varying sizes, leaderless groups and groups with appointed leaders, some led permissively and some led directively, groups meeting over differing periods of time, some with opportunity for feedback and self-evaluation, and some with no such opportunities. It is not surprising that results of this research have been termed by Lorge and Brenner as "amorphous" (43).

The lack of programed research can be attributed to many things—the complexity of human behavior, the difficulty of controlling variables, the lack of adequate measures, or the practical problems besetting an instructor whose primary responsibility is the education of students who would also be the subjects of his experiments. However, one factor is even more significant than any of these. This is the difficulty of devising suitable strategies for controlling, describing, and manipulating the phenomena with which the research is concerned. Studies of instructional methods most frequently deal with real-life situations, and the variety of responses available to students makes the complex learning processes that are involved exceedingly difficult to analyze with any degree of precision. Cause and effect connections are difficult to establish because instructional situations are interpersonal relationships in which many variables are usually functioning simultaneously.

Thus, most studies have been uncoordinated attacks upon isolated aspects of the problem. Despite the rather "amorphous" state of the literature, however, it is possible to obtain answers to a

number of questions—such as the following—related to the possible goals of instruction:

(1) Are small-group methods effective for inducing change in people?
(2) Are small-group methods effective for teaching both information and concepts?
(3) Are small-group methods more effective for teaching information and concepts than conventional instruction?
(4) Are small-group methods effective and better for training in problem solving?
(5) Are small-group methods effective and better for developing positive attitudes toward the course of instruction?
(6) Are small-group methods effective and better for changing content-specific attitudes?

## USE OF SMALL-GROUP METHODS TO INDUCE CHANGE

Group discussion has been found to be effective in changing a wide range of behavior patterns (42). The best-known of these studies were conducted by Lewin and his associates (44). In general, these studies showed that more housewives changed their attitudes about serving various types of food after participating in a group discussion and decision than after hearing lectures concerning the desirability of serving them. Even more important, however, the changed attitudes carried over into actual behavior. In all the studies, the housewives who participated in the discussion groups actually served the foods much more often than those who heard the lectures. Lewin attributed the permanence of the change to group decision; however, he credited the discussion with inducing the change.

Following the studies by Lewin and his associates, discussion has been used to effect change in a variety of contexts. For example, Roseborough (42) reports that group discussion has been used to change attitudes and prejudices (45, 46, 47), to solve community problems (48, 49), to help alcoholics (50), and to raise industrial productivity (11, 51).

It is significant that, in most of the studies cited, highly skilled, professional leaders guided the discussions and activities were carefully contrived to maximize change. It is also important to note that change did not usually occur within all individuals. Nevertheless, it is clear that, when properly conducted, small-group discussion is effective for inducing change in many people.

## SMALL-GROUP METHODS IN INSTRUCTION

Studies of small-group methods in instruction have usually been less rigorous than the research discussed in the previous section. In many instances, the discussion leaders have been less skilled and conditions have not been as well controlled.

A number of the studies have been concerned with training evaluation, mainly in industrial or military programs. Where evaluation has been accomplished, efforts have usually been limited to measurement of the effects of one method or combination of methods against one criterion. Most such studies have been more concerned with demonstrating the utility of a single, uniquely designed program than with comparing the relative merits of several methods or with studying the nature of the learnings achieved.

Evaluation studies have significant value for learning what kinds of programs or methods will produce some results. Furthermore, evaluation provides the instructor responsible for the course with clues for modifying his methods. Nevertheless, however helpful to the particular instructor an evaluation may be, simple evaluation studies produce little knowledge applicable to other instructional contexts and only a few guides for practical decisions relative to them. In short, after evaluation, there is only a little more understanding of general learning implications than there was before. For these reasons, only those evaluation studies which have generalizable relevance will be cited in this chapter.

A number of other studies, performed mainly with college classes, have compared lecture or "instructor-centered" methods with "discussion." In some of these experiments, classes were divided into small groups for the "discussion" condition. However, in others, large classes were not divided and instructors led discussions with groups consisting of, in some cases, up to 50 to 100 students. Only those studies which used small groups (20 or less students) will be cited in this chapter. Furthermore, in no case will studies of *ad hoc* groups be included.

### Teaching Information and Concepts

The effectiveness of small-group methods for teaching information and concepts has been the most extensively researched of all the questions listed in the introduction to this chapter. Studies examining this question have been both evaluative and comparative and have included a variety of course contents.

By far the greatest number of studies have compared lectures with some form of "group discussion" in terms of immediate recall

of content as measured by achievement tests administered at completion of the course. Content about which students were tested included psychology (52, 53, 54, 55), social relations (56), sociology (57, 58), communicable disease theory (59), and military leadership and human relations (60). In all of these studies, the findings were conclusive. As measured by end-of-course tests, both lecture and discussion methods were effective in teaching information and concepts, and no differences were found between the methods.

It is significant that, for each of the above studies, activities of students who participated under "discussion" conditions remained directed toward the acquisition of course content. In contrast, Asch (61) compared lecture with a "non-directive" method in teaching psychology. In the non-directive group, students were free to choose their own goals, select most of their own reading materials, and write weekly reaction reports on their feelings about any experience. Students were expected to provide the discussion and to grade themselves at the end of the term. The role of the instructor was that of a group non-directive counselor who helped create the atmosphere for self-directive learning but did nothing to direct the group toward learning about any predetermined course content.

On an objective examination dealing with the factual material of the textbook, students who participated under the lecture condition performed significantly better. Asch's findings suggest that, if knowledge of course content is the objective, guidance for student activities is desirable, even if the instructor is limited to leading discussions or merely serves as course director.

The importance of instructor quality is confirmed by Mahoney, Jerdee, and Korman (62), who evaluated an industrial management training program. Second-level managers were exposed to "the principles of management" by case analysis and group discussions conducted by leaders selected from other second-level managers who were eligible for the course and trained for their assignments. Training consisted of participation in an earlier offering of the course and some instruction in the training methods used in it. No significant improvements in knowledge of management principles or in the intensity of case analysis were found. It appears that the ability, training, and experience of instructors is an important factor even when the objective is merely transmittal of course content.

The evidence is clear that small-group discussion can be effective for teaching information and concepts about a variety of academic subjects. This finding is further

confirmed for both leadership (60, 63) and supervisory training (64). On the other hand, there is little difference in the value of lecture and discussion for this purpose. Both methods appear to be equally effective.

The findings are somewhat different for the *retention* of information and concepts. Whereas lecture and discussion are equally effective as evaluated by tests administered at completion of the course, information learned through group discussion is better retained as measured by tests administered up to six months after course completion (65, 66, 67).

Although the results are mixed, some evidence suggests that discussion may not be equally effective for all students. For example, with some college courses, it has been found that poorer students learn information and concepts better under more directive methods of instruction, while more able students profit better from discussion (56, 68). On the other hand, in leadership training, DiVesta (60) found that students who started the course at "a low leadership level," as measured by a pre-test, improved more through group discussion while students who started the course at the upper level of leadership scores were not much affected by either lecture or discussion. This finding is in contrast to a well-known axiom among trainers that "those who need leadership training the most usually profit from it the least."

## Teaching Problem Solving

Some valuable insights are provided by several studies of the effects of small-group methods upon the development of skill in solving problems relevant to the content area of a course. These investigations lead to several conclusions that have significant implications for the design and conduct of programs aimed at the development of problem-solving skills.

There is little doubt that small-group methods are effective for improving problem-solving skills of individuals. For example, in experimental (6), classroom (54, 69), and leadership training (63) situations, discussion has resulted in gains in quality of problem solutions. What is more, there is strong support for the idea that discussion is conducive to a higher level of problem solving than is a lecture. Thus, on the basis of his study with a large number of students, Bloom concluded that if evaluation, syntheses, and application are considered as representing relatively active types of thinking which are important for the development of problem-solving abilities and skills, four-fifths of his discussions evoked more thought of this type than did lectures (69).

Although improvement in problem-solving can be obtained even

with brief, leaderless "buzz" sessions (28), higher-quality solutions result when discussions are led by a permissive leader (70). Solutions of even better quality are obtained when a leader uses what Maier and Maier call "developmental discussion (71)," which appears to be a variation of the directed conference method.

Probably an even more critical determinant has been discovered by Lawshe, Bolda, and Brune (72), who conducted a series of studies devoted to investigating the effects upon human relations problem solution of single and repeated exposures to the skit-completion method of role playing. Evaluation criteria consisted of gains in problem solution as measured by scaled responses to a standard human relations training case administered before and after training. Positive changes in criterion case responses were found in only those instances where "impact" occurred in connection with the training experience. Furthermore, for those students where the impact factor was evident, the effects of this experience could result in generalizing to performance on a second criterion case.

Lawshe, Bolda, and Brune define "impact" as a characteristic of a training experience which allows the trainee to criticize own performance in human relations tasks, provides an adequate type of feedback to trainee regarding own performance, and serves to emphasize a particular human relations factor in a strong emotional manner (72). Impact was accomplished by students' role playing of the case materials, and post-performance analyses by the groups such that feedback concerning their performances was available to each student.

This study has important implications. The concept of impact has a sound basis in principles of learning relative to task involvement, feedback, and knowledge of results. Its relevance to the development of problem-solving skills goes far beyond the human relations context in which it was discovered.

Obviously, no sweeping and final conclusions can be drawn from the few studies cited here. However, the findings lend strong support to the idea that small-group techniques are effective in developing problem-solving skills—when they are properly designed with regard to leadership procedures, course materials, and methodology.

## Developing Positive Attitudes Toward Instruction

An important consideration in the design of instructional systems is student motivation. Where learning is the objective, motivation is a principal determinant of achievement. One important factor in such motivation is the extent to which students possess positive attitudes toward the course.

In general, more students who participate under small-group conditions rate their courses higher than those who participate under lecture conditions (53, 54, 58, 61, 73). This finding, however, is not true for all students nor for all situations.

One finding that turns up consistently in studies that compare lecture with group discussion is that, where anxiety exists about course grades, lecture is preferred over discussion (74). It appears that lectures provide more comfort to some students concerning what must be done in order to receive a satisfactory grade, while discussions leave students somewhat in the dark as to what they must know to pass the course (75). This is not to say that such students dislike group discussion but that they like lectures more.

Where course grades were awarded on the basis of objective examinations, students who participated under small-group conditions often reported a greater liking for discussion, and stated they valued lecture more for purposes of helping them to prepare for examinations—despite the fact that such students scored as high on the examinations as those who received lectures (56). It should be emphasized that preference for lectures was not found when grades were not determined by examinations (54, 74).

In general, it can be concluded that small-group methods are effective in developing positive attitudes toward courses of instruction. However, in situations where anxiety about course grades is likely, the methods would probably have greater positive effect upon attitudes if some action were taken to help alleviate the anxiety—such as use of essay and problem-solving questions on examinations, provision of student texts to help prepare for examinations, and judicious combination of lectures and discussion.

## Changing Content-Specific Attitudes

For many instructors, one of the principal goals of instruction is to channel the attitudes of students in directions advocated by the course content (74). Especially in practical courses, student attitudes toward doctrine that is taught, recommended approaches to problems, new techniques, and so forth, may be critical determinants of whether they ever apply the acquired knowledge and whether they apply it as taught.

One example where attitudes are deemed to be especially important is leadership. Because values and attitudes give direction to interpersonal behavior (76), it is generally accepted that a leader's attitude toward his role, toward his subordinates, and toward human relationships in general is at least as important to effectiveness as his specific skills. For this

reason, it is usually deemed desirable for leadership training to change attitudes.

Results of research concerning the effects of small-group methods upon attitudes seem reasonably conclusive. For academic courses, it has been consistently found that discussion is more effective than lecture for changing content-specific attitudes in directions desired by instructors (53, 55, 58). In only one case, the study by Asch (61), discussed previously, was lecture equally effective for changing attitudes. It will be recalled that Asch's "group" condition was a "non-directive" situation in which the instructor served only as counselor to the group and provided no direction for the course. Since students controlled all classroom activities, there is no reason to expect any changes in content-specific attitudes other than those which would normally accrue from routine exposure to any course and which would occur as well from a lecture as from any other instructional method.

Results are also conclusive where instruction was of a more practical nature (77). Thus, in leadership training, small-group methods have been demonstrated consistently to be effective in changing attitudes (64, 72, 78, 79, 80, 81, 82). What is more, the changes appear to be lasting. Hazeltine and Berra (80) rechecked their students one year after their training and found the same changed attitudes as noted upon completion of the course. Carron (78) found changed attitudes still expressed by his students 17 months after completion of training.

It appears that some small-group methods are especially effective in changing attitudes. However, this conclusion does not hold for all methods. For example, Vinacke (28) found that buzz sessions, while effective in developing problem-solving skills, have little influence upon attitudes. The chief characteristic of buzz sessions is their brevity. Accordingly, the finding that they exert little effect upon attitudes would not be unexpected.

## SUMMATION

Probably the most striking impression to be gained from a review of research on small-group methods is its scarcity. Except for the few studies reported here, effort among educators and trainers seem to have been devoted more to exploitation of the various methods than to evaluation of their effectiveness.

The complete lack of any substantive research concerned with certain of the methods is also remarkable. In this regard, the most glaring example is the case method, which is one of the most widely used of all small-group techniques in both universities and industrial training. No objective

evaluation of the effectiveness of case studies was found.

Despite the scarcity of research and the fact that results were somewhat amorphous, some conclusions can be made. Thus, comparisons of the large-class lecture with small-group methods, principally discussion groups, have shown that lecture and small-group techniques produce about equal results in the acquisition of information and concepts by most students. However, knowledge gained through group methods is better retained. There is a possibility that poorer students may do better when exposed to lectures.

Research indicates that small-group methods are more effective in developing problem-solving skills. Some methods, however, are more effective than others, indicating the necessity for careful course design with regard to leadership procedures, materials, and choice of methodology.

In general, small-group methods are significantly more effective than lectures for changing attitudes. The methods are especially helpful in developing positive attitudes toward course work, thus enhancing motivation for learning. In addition, research indicates that group techniques are more effective in changing content-specific attitudes, which has important implications for application of the knowledge acquired.

These conclusions afford little basis for discarding the lecture as an instructional method. It is of value in attaining all of the objectives discussed in this chapter. As shown here, the lecture is as effective as small-group methods for the transmission of information and concepts. Therefore, because the lecture is capable of accommodating more students in one place in any single period of time, it is probably more efficient than group techniques for disseminating facts. Accordingly, it is reasonable to view the lecture as an important means for providing information in an efficient manner and, in addition, for introducing topics which can be further pursued in depth through the various small-group methods.

# Chapter 5

# CONCLUSIONS AND IMPLICATIONS

It has been the purpose of this report to describe the present "state of the art" of small-group methods of instruction. Such an analysis is timely because of current concern with ways of preserving the quality of instruction despite the large numbers of students who must be educated or trained. Small-group methods appear to be one substitute for mass programs of instruction.

Small-group instruction is burgeoning in such widely disparate contexts as colleges, industry, and the Armed Forces. There are probably many reasons for this popularity, not the least of which is a remarkable tendency for fads to play a major role in the choice of educational methods. Nevertheless, one fact remains clear: Small-group methods have been embraced with enthusiasm by large numbers of educators and trainers.

There can be no doubt that small-group methods are founded upon a well-developed rationale which is more elaborate than those for most other teaching methods. With the exception of programed instruction, most methods have evolved through trial and error and, therefore, their rationales are, to say the least, unsystematic. On the other hand, like programed instruction, the rationale for small-group methods has been more or less systematically derived from an already existing body of scientific knowledge. It is the result of a rather sophisticated melding of learning theory with the techniques of group dynamics and, taken as a whole, provides a coherent basis for use of the methods.

Research directly addressed to the question of effectiveness has been neither systematic nor extensive. However, the studies which have been performed demonstrate the efficacy of small-group methods under certain conditions and for specific purposes.

## IMPORTANCE OF INSTRUCTIONAL OBJECTIVES

Probably the clearest conclusion to be drawn from this analysis is that, perhaps even more than for other types of education or training, clear and explicit instructional objectives are a critical requisite for the effective use of small-group methods. The methods differ in terms of outcomes, requisite instructors' skills, and expected students' reactions. Accordingly, effective use of the methods requires that instructors know precisely what they are trying to accomplish.

An example involving leadership training will illustrate the importance of clearly-conceived objectives. Both research and experience have confirmed that an important function of a leader is to develop high levels of motivation in subordinates. However, if the exceedingly important issues concerned with the nature of this motivation are ignored, a number of questions important for training design still remain. Is it sufficient for students to be made aware of the fact that other people have motives and needs which must be considered in leadership decisions and actions? In addition, should they be drilled in techniques of "motivating" subordinates? Should they be trained in the ethics of "group-centered leadership"? Would it be desirable to teach something about the psychology of motivation?" Answers to methodological questions such as these can be determined only when course objectives have been carefully derived.

The implications for course design are crucial. The purpose of education or training is to achieve change. If change is to be achieved, the instructor must be able to control and manipulate his inputs into the course with a high level of precision. Regardless of the kind of instruction undertaken, this is always a knotty problem. The difficulty can be compounded even more if the instructor is unclear regarding precisely what is intended to be accomplished by the course. For example, is the result of instruction to be a cognitive change based on the acquisition of information, an attitudinal change brought about by the additional information and experiences gained through the course, or a behavioral change—an improvement in specified skills? If trainers are not clear relative to the specific changes expected after students are exposed to a course, valid instruction becomes virtually impossible to develop.

Any instructor who is given the responsibility for designing a course is faced squarely with necessity for resolving this problem in some way. As decisions are made about the proper methods and content to use, the question arises as to the objectives toward which instruction should be directed. Indeed, as the instructor goes about selecting objectives, the deeper problem of the kinds of behavior the students should exhibit after completion of the course must be resolved. The instructor's resolution of these problems also has important implications for the decisions that must be made relative to content, method, and other aspects of instruction.

The principal task of course designers is to devise suitable strategies for eliciting, controlling, and channeling student behavior. The choice of any instructional method is based on a theory about

the relation of the method to certain desired behaviors. The instructor has a hypothesis about the kind of behavior he expects to result following a given treatment, and he proceeds to test it--to apply the method and manipulate his inputs in accordance with the theory.

Thus, it is clear that an explicit conception of the behavior which is desired to follow from the course is essential. An instructor who has objectives clearly in mind and, in addition, has made a careful analysis of the available instructional methods, is in a more favorable position to design a course with sufficient precision to achieve genuine change.

## THE USE OF SMALL-GROUP METHODS

For certain objectives, small-group techniques are the methods of choice; for other purposes, they are valuable options which can provide an educational system with needed flexibility. When used properly, the methods are invaluable for increasing student motivation through greater involvement and participation. Under certain conditions, they even make it possible to ease the loads of overburdened instructors by reducing the time required to prepare formal presentations.

In general, it is feasible to use small-group methods:

(1) To increase depth of understanding and grasp of course content.
(2) To enhance motivation and generate greater involvement of students with the course.
(3) To develop positive attitudes toward later use of material presented in the course.
(4) To develop problem-solving skills specific to the content of the course.
(5) To provide practice in the application of concepts and information to practical problems.
(6) To generate ideas among students concerning ways of applying knowledge acquired in the course.
(7) To develop commitment of students to recommended ways of handling problems.
(8) To emphasize an important issue or drive home a major point of instruction.
(9) When content experts are scarce or not available as instructors.

Despite these benefits, small-group methods are not always used in the best possible ways.

One reason may be that their flexibility and relative ease of administration can lead to the belief that the methods are foolproof. Of course, that is not the case. Like all instructional methods, the success of small-group techniques depends largely upon the care with which they are designed and used. For this reason, it is important to state several important cautions with regard to the most effective use of the methods.

First, as discussed in the preceding section, it is essential that methods be selected and used with the instructional objective clearly in mind. Thus, the time, effort, and thought expended in accurate definition of objectives, in selection of proper methods, and in use of the methods appropriate to the objectives will usually be well repaid in the quality of learning that is achieved.

Second, although small-group methods are effective for certain purposes when used alone, they are most successful when students are also equipped with background information concerning the topics or problems under study. The foundation for all small-group methods is discussion, and instructive discussion cannot be accomplished unless students have some informational base from which to talk. This base might derive from experience, from reading, or from formal presentations of information. Therefore, unless most students possess relevant experience, small-group methods are usually more effective when used in conjunction with either printed material or some formal presentation such as lectures or films. In most instances, informational material should precede the use of small-group methods. The only exception is the use of brief leaderless discussion or role playing to introduce a problem or emphasize an issue.

Finally, groups in which members work together over periods of time are, in general, likely to be more efficient and effective vehicles for learning. Therefore, where small-group methods are used repeatedly throughout the duration of a course, it is usually advisable to assign students permanently to groups and allow them to remain together whenever group sessions are considered desirable. An exception is the case where a stated objective is the stimulation of students through exposure to a wide range of ideas and viewpoints. With such an objective, periodic realigning of groups may be advisable.

## REQUIREMENTS FOR INSTRUCTORS

It is axiomatic that no instructional method is better than the person who uses it. This statement is especially true with respect to small-group methods of instruction. However, the requirements for effective use of the methods

are somewhat different than those for other instructional techniques. For example, it is not essential that discussion leaders or instructors be content experts, although they should have some preparation in the content and expertise would certainly contribute to the quality of learning. Since responsibility for most of the learning rests with the students and since guides for discussion leaders can be prepared by experts, complete mastery of content is not an essential requirement for instructors.

On the other hand, solid grounding in the rationale and uses of small-group methods is necessary for their maximum effectiveness. Thus, it is important for instructors to be well-trained in use of the methods. This includes not only skill in conducting group sessions but familiarity with the purposes of the various methods. Understanding of purposes is necessary because they determine which techniques should be selected and how they should be used.

It is necessary for an instructor to be clear concerning precisely what he is attempting to accomplish in the area of learning, that is, change attitudes, develop skills, and so forth. This is important because the way he manipulates the instructional process will be determined by his understanding of the learning objectives.

Finally, it is important for an instructor to understand, accept, and be comfortable with the premises embodied in the rationale for small-group instruction. Principal among these are the premises that (a) a group of reasonably capable adults can learn on its own if the instructor will let it, (b) it is not essential for an instructor to control every input into a discussion in order for it to be an effective learning experience, and (c) maximum learning probably occurs when a group breaks its dependence upon its instructor and assumes responsibility for learning.

The above requirements for instructors are not difficult to meet. All that is needed is an acceptance of the rationale and some serious study of ways the techniques can and should be applied.

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It would be an obvious overstatement to claim that behavioral-science research and development has produced answers to all—or even *most*—of the questions educators have about teaching methods. Current practice is not, to any great extent, the product of scientific research.

However, a considerable amount of verified information *is* available on specific teaching methods and the effects these methods have on student learning. In this work, the author has focused on "small-group instruction," and has provided descriptions of the principal methods and the rationales on which they are based. He concludes that small-group techniques—properly used—can be effective for enhancing motivation to learn, developing positive attitudes toward later use of course material, and improving problem-solving skills. Because the methods differ in terms of outcomes, necessary instructor skills, and reactions to be expected from students, all educators-trainers who are concerned with small-group instruction will want to be acquainted with the similarities and differences of the several methods described.